State of California
The Natural Resources Agency
DEPARTMENT OF WATER RESOURCES
Division of Statewide Integrated Water Management
Water Use and Efficiency Branch

A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan

October 24, 2012

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Governor
State of California

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Secretary for Natural Resources
The Natural Resources Agency

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Copies of this report are available from:

State of California
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P. O. Box 942836
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This Guidebook is also available on the Water Use and Efficiency website at:
http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a6/

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Tables, Worksheets and Figures

List of Acronyms and Abbreviations

AB 1404	Assembly Bill 1404, Laird, 2007- Water Measurement Information
AF	Acre foot
AWMC	Agricultural Water Management Council
AWMP	Agricultural Water Management Plan
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act (1992)
CCR	California Code of Regulations
EWMP	Efficient Water Management Practices
DWR	Department of Water Resources
MOU	Memorandum of Understanding
RRA	Reclamation Reform Act (1982)
SB X7-7	The Senate Bill X7-7, the Steinberg Water Conservation Act of 2009
SWP	State Water Project
SWRCB	State Water Resources Control Board
§	Code or Regulatory Section
USBR	United States Bureau of Reclamation
Water Code	California Water Code

This guidebook was prepared by DWR to provide assistance to agricultural water suppliers who must comply with the requirements of the California Water Code Section I, Part 2.55 and Part 2.8 and Section 597 of Title 23 California Code of Regulations. Agricultural water suppliers subject to the requirements are solely responsible for compliance with the requirements and may use this guidebook if they choose. DWR has voluntarily opted to provide this guidebook to make complying with the new law simpler for agricultural water suppliers. Its contents are not mandatory, but are explanatory suggestions only. Agricultural water suppliers are free to use this Guidebook as they see fit.

1 Introduction

1.1 Using this Guidebook

The document titled "A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2012 Agricultural Water Management Plan" (Guidebook) was prepared by the California Department of Water Resources (DWR) to assist agricultural water suppliers in understanding and complying with the requirements of the SB X7-7- Water Conservation Act (Steinberg Statute of 2009), (Section I, Part 2.55, Division 6 of the California Water Code), the associated Agricultural Water Management Planning Act (Section I, Part 2.8, Division 6 of the Water Code), and the subsequent Agricultural Water Measurement Regulation requirements (described in Title 23 California Code of Regulations). It is meant to help agricultural water suppliers better understand the Water Code Agricultural Water Management Plan (AWMP) requirements and assist them in developing an AWMP. This Guidebook also describes how plans submitted to the Agriculture Water Management Council (AWMC) or the U.S. Bureau of Reclamation (USBR) can be supplemented to satisfy the Water Code and Agricultural Water Measurement Regulation requirements. **However, water suppliers are solely responsible for ensuring that they have complied with the Water Code and other applicable laws and regulations.** This Guidebook is posted on DWR's website at: http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a6/

Using this guidebook by the agricultural water suppliers will help refine this Guidebook by revealing lessons learned from the first round of AWMP submittals and enhancements and user needs when DWR, with input from stakeholders, will embark on updating future versions of this Guidebook.

1.2 Guidebook Objectives

This guidebook is not a rule; use of this Guidebook (including supporting tools such as the AWMP Template and Worksheets) is encouraged but is not required.

Specifically, the objectives are to:

- Inform water suppliers of AWMP required elements identified in the California Water Code (Water Code).
- Describe the relationship between the Water Code and Agricultural Water Measurement Regulation and reporting requirements (Title 23 California Code of Regulations [CCR], Section 597 et seq.).
- Provide guidance to demonstrate compliance with the Water Code.
- Describe how to submit a completed 2012 AWMP to DWR.

1.3 Important Deadlines

Upcoming deadlines specified in the Water Code and the Agricultural Water Measurement Regulation are as follows:

July 2012	Implement the Agricultural Water Measurement Regulation and complete any measurement device testing/certification in accordance with the Agricultural Water Measurement Regulation. Include in the 2012 AWMP, if applicable, the required documentation and a plan for corrective action if existing measurement devices are not in compliance.
July 31, 2012	Begin implementing critical and conditional EWMPs (for the latter, only if these are locally cost-effective and technically feasible).
December 31, 2012	Adopt 2012 AWMP. Submit 2012 AWMP to DWR within 30 days of adoption.
July 31, 2013	Submit Agricultural Aggregated Farm-Gate Delivery Report to DWR.
December 31, 2015	Complete corrective action for agricultural water measurement devices, if applicable, in accordance with the Agricultural Water Measurement Regulation and the 2012 AWMP.
December 31, 2015	Adopt 2015 AWMP. Submit 2015 AWMP to DWR within 30 days of adoption.

1.4 Agricultural Water Management Planning Background

The Water Code states:

An agricultural water supplier shall prepare and adopt the AWMP on or before December 31, 2012, and shall update that AWMP on December 31, 2015, and on or before December 31 every five years thereafter.

"Agricultural water supplier" is defined as a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding the acreage that receives recycled water. "Agricultural water supplier" includes a supplier or contractor for water regardless of the basis of right that distributes or sells water for ultimate resale to customers.

Every water supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt the AWMP within one year after the date it has become an agricultural water supplier.

The agricultural water supplier shall make its proposed AWMP available for public review and provide copies of its adopted AWMP to certain entities.

An agricultural water supplier shall implement its AWMP according to the schedule set forth in its AWMP.

On or after July 1, 2013, an agricultural water supplier will not be eligible for a water grant or loan awarded or administered by the State unless the supplier complies with the Water Code (adopts the AWMP and implements EWMPs). An agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to adopt and implement its AWMP unless sufficient funding has specifically been provided to that water supplier for that purpose.

Important note regarding water supplier loan and grant eligibility

AWMPs that meet the Water Code requirements (adopt AWMP and implement EWMPs) are necessary for loan and grant eligibility on or after July 1, 2013. If an agricultural water supplier doesn't implement all the EWMPs, the supplier can still be eligible if the following documentation is submitted to DWR:

- ✓ Schedule to Implement EWMPs (Section 3.7 of this Guidebook)
- ✓ Documentation justifying EWMPs are not locally cost effective or technically feasible. (Section 3.7 of this Guidebook)

If the agricultural water supplier adopts an urban water management plan pursuant to the Water Code or by participating in area-wide, regional, watershed, or basin-wide water management planning, the supplier may satisfy the requirements of the Agriculture Water Management Planning Act (Part 2.8 of the Water Code).

1.5 Submittal Requirements - What to Submit

Agricultural water suppliers (defined above) that are required by the Water Code to submit an AWMP to DWR may choose one of the following options below. Which option you follow is determined by whether you are a USBR contractor, an AB 3616 MOU signatory, or if neither of the aforementioned options apply to you.

Option 1: Agricultural water suppliers that submit AWMPs to DWR in accordance with the Water Code plan content and EWMP requirements

The AWMP contents are outlined in Section 10826 of the Water Code and are described in this Guidebook. Agricultural water suppliers are also is required by the water Code to report those EWMPs implemented and planned, an estimate of efficiency improvements achieved, and efficiency improvements expected in the next five and ten years. If an EWMP is determined to be not locally cost-effective or technically feasible, the water supplier also submits documentation for that determination in the AWMP (see Section 3.7 of this Guidebook). Agricultural water suppliers should also include any additional documentation necessary to comply with the Agricultural Water Measurement Regulation in the AWMP (see Section 3.8 and Chapter 6 of this Guidebook).

Option 2: Agricultural water suppliers that submit plans to the Agricultural Water Management Council (AWMC)

Agricultural water suppliers that submit water management plans in compliance with 1999 Agricultural Water Management Council Memorandum of Understanding (1999 AWMC MOU) requirements may submit these plans with additional information to DWR. Additional information includes EWMPs implemented, EWMPs planned for implementation, an estimate of efficiency improvements since the last report, and efficiency improvements expected in the next five and ten years. If any EWMP is determined to be not locally cost-effective or technically feasible, documentation for that determination is also to be included (see Section 3.7 of this Guidebook). The plan's preparation adoption and submittal should follow Water Code Part 2.8 (see Chapter 4 of this Guidebook). Additional documentation required by the Agricultural Water Measurement Regulation, can be included as Attachments A through E of the AWMP, (see Chapter 6 of this Guidebook). All additional information and documentation should be reviewed and adopted by the water supplier.

> All agricultural water suppliers subject to SB X7-7 should implement the critical EWMPs (outlined in Water Code §10608.48 (b)) and also conditional EWMPs (outlined in 10608.48 (c) and report if they are locally cost effective or technically feasible.

Option 3: Agricultural water suppliers that submit plans to U.S. Bureau of Reclamation

Agricultural water suppliers that submit water management/conservation plans under the Central Valley Improvement Act of 1992 (CVPIA) or Reclamation Reform Act of 1982 (RRA) may submit these plans and additional documentation to DWR under certain conditions:

1) The water management/conservation plan has been adopted by the agricultural water supplier and submitted to the U.S. Bureau of Reclamation (USBR) within the previous four years and,

2) The USBR has accepted the water management/conservation plan as adequate. The Water Code does not require these agricultural water suppliers to prepare and adopt water management/ conservation plans on a schedule different from that required by the USBR.

The agricultural water suppliers that submit a plan to USBR may meet the requirements of section 10608.48 (d) and (e) [report of EWMPs implemented, planned for implementation, and estimate of efficiency improvements, as well as documentation for not locally cost effective EWMPs] by submitting the USBR-accepted plan to DWR. DWR encourages CVPIA/RRA water suppliers to also provide a report on water use efficiency information (required by section 10608.48(d); see Section 3.7 of this Guidebook). Additional documentation required by the Agricultural Water Measurement Regulation, can be submitted as Attachments A through E of the AWMP, (see Chapter 6 of this Guidebook). This documentation should be in the plan submitted to the USBR for plans that have not yet been accepted as adequate by the USBR. This documentation can also be directly submitted with the plans to DWR for those plans that have already been accepted by the USBR as adequate by December 30, 2012 and no earlier than January 1, 2009. The plan's preparation, adoption, and submittal should comply with Water Code Part 2.8 (see Chapter 5 of this Guidebook).

All agricultural water suppliers subject to SB X7-7 must provide documentation required by the Agricultural Water Measurement Regulation (see Chapter 6 of this Guidebook) as Attachments A through E, when appropriate:

Attachment A - Legal Certification and Apportionment Required for Water Measurement

Attachment B - Engineer Certification and Apportionment Required for Water Measurement

Attachment C - Description of Water Measurement Best Professional Practices

Attachment D - Documentation of Water Measurement Conversion to Volume

Attachment E - Device Corrective Action Plan Required for Water Measurement

1.6 AWMP Submittal

All agricultural water suppliers that are required to prepare an AWMP submits a copy of the AWMP to DWR and a copy to the California State Library, as well as other entities as specified in Section 3.1 of this Guidebook.

A. Submission to DWR

Send the AWMP and applicable documentation required by the Water Code and the Agricultural Water Measurement Regulation directly to DWR. DWR requests one (1) electronic copy and one (1) hardcopy of the AWMP and all applicable documentation.

The electronic copy can be sent by email to agwue@water.ca.gov (attachment size not to exceed 20 MB) or on a CD.

CDs and hard copies should be mailed to:

Agricultural Water Use Efficiency

Department of Water Resources

Statewide Integrated Water Management

Water Use and Efficiency Branch

PO Box 942836

Sacramento, CA 94236-0001

Or, dropped off in person at:

Agricultural Water Use Efficiency

Department of Water Resources

Statewide Integrated Water Management

Water Use and Efficiency Branch

901 P Street, Room 314

Sacramento, CA 95814

For AWMC member who submitted water management plans to the AWMC, the AWMC member is responsible for timely submittal of these plans to DWR. The AWMC member may submit the AWMC plan directly to DWR. One (1) electronic copy and one (1) hard copy of the AWMP and applicable documentation should be submitted.

For CVPIA/RRA water suppliers whose plans have been accepted as adequate by the USBR, the water supplier is responsible for the timely submittal of the AWMP to DWR. These suppliers submit the plan and applicable documentation directly to DWR.

B. Submission to the California State Library

Complete AWMPs must also be submitted to the California State Library. Complete AWMPs include the plan and any applicable required supporting documentation, attachments, or additional documentation.

Hardcopies or CDs should be mailed to:

California State Library
Government Publications Section
ATTN: Water Management Plan Coordinator
P.O. Box 942837
Sacramento, CA 94237-0001

Electronic copies (preferably Adobe .pdf files) should be emailed to:
cslgps@library.ca.gov

Include, "Agricultural Water Management Plan submission" in the subject line.

1.7 DWR's Review of Submittals

DWR will review all submittals to determine if AWMPs and other documents meet the requirements of the Water Code and the Agricultural Water Measurement Regulation. DWR will inform water suppliers about the status of their plans as follows:

- If a water supplier submits an AWMP that meets the Water Code requirements and Agricultural Water Measurement Regulation documentation, the submittals will be accepted as meeting the requirements of the Water Code and the Agricultural Water Measurement Regulation documentation. (See Chapter 2 Checklist)
- If information is missing, the supplier will be notified that the submittals do not meet the requirements. The supplier may revise the submittals and, if needed, amend and resubmit them to DWR for review.

1.8 DWR Report to the California Legislature

In accordance with the Water Code, DWR, in consultation with the State Water Resources Control Board, will report to the Legislature on or before December 31, 2013, on the status of all submittals. DWR will not approve, disapprove, or critique individual submittals in its report to the Legislature and will provide a copy to the agricultural water suppliers that submitted AWMPs.

The report will:

- Identify agricultural water suppliers that have submitted an AWMP that meets the requirements of the Water Code,
- Identify agricultural water suppliers that have not met the requirements,
- Identify outstanding elements of the AWMPs,
- Include EWMPs that have been implemented and planned for implementation,
- Include an evaluation of the effectiveness of the Water Code in promoting efficient water management practices,
- Include an assessment of how the implementation of EWMPs has affected and will affect agricultural operations,
- Include an estimate of the water use efficiency improvements identified in the AWMPs, and
- Possibly make recommendations to the legislature on proposed changes to the Water Code.

1.9 Aggregated Farm-Gate Delivery Report

The Aggregated Farm-Gate Delivery Report is not a part of the AWMP process. Information on the Aggregated Farm-Gate Delivery Report has been included in this Guidebook for informational purposes. Submittal of the Aggregated Farm-Gate Delivery Report to DWR is on a different schedule, as discussed below.

All agricultural water suppliers providing water (excluding recycled water) to at least 25,000 irrigated acres (and those supplying 10,000 to 25,000 acres if funding is provided) must measure water delivery to their customers according to the Agricultural Water Measurement Regulation. That regulation specifies the format of the data to be reported to DWR (see Appendix B.4 and B.8 for requirement details and for Aggregated Farm-Gate Delivery Reporting Format for Article 2 (Rev. 6-20-2012)).

In addition, the following agricultural water suppliers, as required by AB 1404, use best professional practices to measure water deliveries to their customers, if locally cost-effective, and submit the above report on the same format to DWR:

- Suppliers providing water for 10,000 to 25,000 acres of irrigated land if no funding is provided, to comply with the Agricultural Water Measurement Regulation, and
- Suppliers providing water for 2,000 to 10,000 acres of irrigated land or delivering 2,000 acre-feet or more of water annually.

All aggregated farm-gate delivery reports are due July 31, 2013. DWR has issued a News Release on September 6, 2012 providing information and the form for reporting to DWR. See DWR website at http://www.water.ca.gov/wateruseefficiency/agricultural/farmgatedelivery.cfm.

1.10 Guidebook Organization

This Guidebook is organized into seven parts:

- **Introduction** – includes background information, important dates, and submittal process.
- **Agricultural Water Management Plan Preparation** – includes a checklist that shows all requirements of the Water Code and a template that can be used to prepare an AWMP.
- **The Water Code Agricultural Water Management Plan Preparation Guidance** – includes specific guidance and suggestions for addressing the Water Code AWMP requirements
- **1999 AWMC MOU Process Guidance** – includes the Water Code compliance guidance for members of the AWMC who submit plans following the 1999 AWMC MOU process.
- **USBR CVPIA/RRA Process Guidance** - includes the Water Code compliance guidance for agricultural water suppliers that submit plans to the USBR following the CVPIA/RRA process.
- **Water Measurement Documentation** – includes Agricultural Water Measurement Regulation reporting documentation in the AWMP.
- **Appendix A: Worksheets** – includes worksheets that agricultural water suppliers can use in preparing the AWMP.
- **Appendix B: Supporting Information** –includes additional discussions of content subjects, supporting documents related to preparing the AWMP, Agricultural Water Measurement Regulation compliance and documentation, Aggregated Farm-Gate Delivery Reporting Format for Article 2 (Rev.6-20-12), and relevant text of the Water Code and the Agricultural Water Measurement Regulation.

Table A summarizes the relationship between the Water Code AWMP, the 1999 AWMC MOU water management plan and USBR water management/conservation plan content/elements. **Table B** summarizes applicable Efficient Water Management Practices (EWMPs) and Agricultural Water Measurement Regulation documentation reported in the AWMPs. It also lists documentation to be reported by agricultural water suppliers' for loan and grant eligibility if the supplier has not implemented an EWMP.

Table A. Comparison of California Water Code AWMP Required Elements with 1999 AWMC MOU and USBR Plan Requirements			
Required Element	***Water Code §***	**1999 AMWC MOU[1]**	**USBR CVPIA and RRA[2]**
Coordination	***N/A***	Step 1	**N/A**
Plan Adoption	*10821*	Step 7	Section 8
Previous Water Management Activities	*10826 (d)*	Step 4	**N/A**
Agricultural Water Supplier Service Area	*10826 (a)*	Step 2	Section 1
Inventory of Water Supplies	*10826 (b)*	Step 3A-C	Section 2
Source Water Quality Monitoring Practices	*10826 (b) (4)*	Step 3D	Section 2D
Water Uses	*10826 (b) (5)*	Step 3E	Section 2E
Drainage from the water supplier's surface area	*10826 (b) (6)*	Step 3F	Section 2F
Water accounting	*10826 (b) (7)*	Step 3G	Section 2G
Water Supply Reliability	*10826 (b) (8)*	Step 3H	**N/A**
Effects of Climate Change on Future Supply	*10826 (c)*	**N/A**	**N/A**
EWMPs	*10826(e) & 10608.48(b)-(c)*	Step 5	Section 3
Regional Plan	*10829*	**N/A**	Section 7

Notes:
1. Step 6: "Develop schedules, budgets, and projected results" is unique to the MOU.
2. Sections 4-7 are unique to USBR's process (Section 4: BMPs for Urban Contractors; Section 5: Plan Implementation; Section 6: Exemption Process)

Table B. EWMPs and Agricultural Water Measurement Regulation Documentation Required For the Three Options				
Required by	**Requirement details**	**Water Code AWMP (Option 1)**	**1999 AWMC MOU Plan (Option 2)**	**CVPIA/RRA Plan (Option 3)**
Documentation Required as a Part of the Plan				
Required by the Water Code (see Section 3.7)	Tables VII.A.1 and VII.A.2: Report of 10608.48 EWMPs Implemented	Required		These suppliers may meet this requirement by submitting CVPIA/RRA Plan
	Table VII.B: Non-Implemented 10608.48 EWMPs Documentation	Required		
Required by Agricultural Water Measurement Regulation, where applicable (see Chapter 6)	Attachment A- Legal Certification	Required		
	Attachment B- Engineer Certification	Required		
	Attachment C- Description of Best Professional Practices	Required		
	Attachment D- Water Measurement Conversion	Required		
	Attachment E- Correction Action	Required		
Documentation Required, If Water Supplier Has Not implemented All EWMPs, for Loan and Grant Eligibility				
Required by the Water Code (see Section 3.7)	Table VII.A.3 - Schedule to Implement 10608.48 EWMPs	Required if all of the Water Code 10608.48 EWMPs have not been implemented.		

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2 Agricultural Water Management Plan Preparation

This chapter identifies Water Code requirements for preparing an AWMP and the Agricultural Water Measurement Regulation reporting in the AWMP. These requirements are listed in Section 2.1 below and in Section 2.2 (AWMP Template), which can be used to prepare the AWMP. The AWMP Template also references Worksheets that an agricultural water supplier can use, which are provided in Appendix A. The AWMP Template outline and the use of the provided Worksheets are encouraged but are not required. The following section, Chapter 3, details Water Code requirements, identifies what data could be useful in the Water Code required descriptions/components, and provides examples, explanations, and links that may be useful in preparing an AWMP.

2.1 Checklist

The following checklist can be used by the water supplier to track Water Code requirements for plan content and plan preparation and adoption of individual or regional AWMPs. Completion of this checklist and inclusion of it in the AWMP is encouraged for all water suppliers submitting plans. DWR will use this checklist while reviewing plans.

AWMP* Location	Guidebook Location	Description	Water Code Section (or other, as identified)
	1.4	AWMP Required?	10820, 10608.12
	1.4	At least 25,000 irrigated acres or	10853
	1.4	Less than 25,000 acres and funding provided	10853
	1.4	Initial AWMP prepared and adopted by December 31, 2012?	10820 (a)
	1.4	December 31, 2015 update	10820 (a)
	1.4	5-year cycle update	10820 (a)
	1.4	New agricultural water supplier after December 31, 2012 - AWMP prepared and adopted within 1 year	10820 (b)
	1.5, 4.2	1999 AWMC MOU: Report on EWMP implemented or scheduled for implementation included	10827
	1.5, 5	USBR water management/conservation plan:	10828(a)
	1.5, 5.1	Adopted and submitted to USBR within the previous four years, AND	10828(a)(1)

AWMP* Location	Guidebook Location	Description	Water Code Section (or other, as identified)
	1.5, 5.1	The USBR has accepted the water management/conservation plan as adequate	10828(a)(2)
	1.4	UWMP or participation in area wide, regional, watershed, or basin wide water management planning: does the plan meet requirements of SB X7-7 2.8 **(use checklist)**	10829
	3.1 A	Description of previous water management activities	10826(d)
	3.1 B.1	Was each city or county within which supplier provides water supplies notified that the agricultural water supplier will be preparing or amending a plan?	10821(a)
	3.2 B.2	Was the proposed plan available for public inspection prior to plan adoption?	10841
	3.1 B.2	Publically-owned supplier: Prior to the hearing, was the notice of the time and place of hearing published within the jurisdiction of the publicly owned agricultural water supplier in accordance with Government Code 6066?	10841
	3.1 B.2	14 days notification for public hearing	GC 6066
	3.1 B.2	Two publications in newspaper within those 14 days	GC 6066
	3.1 B.2	At least 5 days between publications? (not including publication date)	GC 6066
	3.1 B.2	Privately-owned supplier: was equivalent notice within its service area and reasonably equivalent opportunity that would otherwise be afforded through a public hearing process provided?	10841
	3.1 C.1	After hearing/equivalent notice, was the plan adopted as prepared or as modified during or after the hearing?	10841
	3.1 C.2	Was a copy of the AWMP, amendments, or changes, submitted to the entities below, no later than 30 days after the adoption?	10843(a)
	3.1 C.2	The department.	10843(b)(1)
	3.1 C.2	Any city, county, or city and county within which the agricultural water supplier provides water supplies.	10843(b)(2)
	3.1 C.2	Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.	10843(b)(3)
	3.1 C.2	Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(4)
	3.1 C.2	Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.	10843(b)(5)

AWMP* Location	Guidebook Location	Description	Water Code Section (or other, as identified)
	3.1 C.2	The California State Library.	10843(b)(6)
	3.1 C.2	Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.	10843(b)(7)
	3.1 C.3	Adopted AWMP availability	10844
	3.1 C.3	Was the AWMP available for public review on the agricultural water supplier's Internet Web site within 30 days of adoption?	10844(a)
	3.1 C.3	If no Internet Web site, was an electronic copy of the AWMP submitted to DWR within 30 days of adoption?	10844(b)
	3.1 D.1	Implement the AWMP in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.	10842
	3.2	Description of the agricultural water supplier and service area including:	10826(a)
	3.2 A.1	Size of the service area.	10826(a)(1)
	3.2 A.2	Location of the service area and its water management facilities.	10826(a)(2)
	3.2 A.3	Terrain and soils.	10826(a)(3)
	3.2 A.4	Climate.	10826(a)(4)
	3.2 B.1	Operating rules and regulations.	10826(a)(5)
	3.2 B.2	Water delivery measurements or calculations.	10826(a)(6)
	3.2 B.3	Water rate schedules and billing.	10826(a)(7)
	3.2 B.4	Water shortage allocation policies.	10826(a)(8)
	3.3	Water uses within the service area, including all of the following:	10826(b)(5)
	3.3 A	Agricultural.	10826(b)(5)(A)
	3.3 B	Environmental.	10826(b)(5)(B)
	3.3 C	Recreational.	10826(b)(5)(C)
	3.3 D	Municipal and industrial.	10826(b)(5)(D)
	3.3 E	Groundwater recharge.	10826(b)(5)(E)
	3.3 F	Transfers and exchanges.	10826(b)(5)(F)
	3.3 G	Other water uses.	10826(b)(5)(G)
	3.4 A	Description of the quantity of agricultural water supplier's supplies as:	10826(b)
	3.4 A.1	Surface water supply.	10826(b)(1)
	3.4 A.2	Groundwater supply.	10826(b)(2)

AWMP* Location	Guidebook Location	Description	Water Code Section (or other, as identified)
	3.4 A.3	Other water supplies.	10826(b)(3)
	3.4 A.4	Drainage from the water supplier's service area.	10826(b)(6)
	3.4 B	Description of the quality of agricultural waters suppliers supplies as:	10826(b)
	3.4 B.1	Surface water supply.	10826(b)(1)
	3.4 B.2	Groundwater supply.	10826(b)(2)
	3.4 B.3	Other water supplies.	10826(b)(3)
	3.4 C	Source water quality monitoring practices.	10826(b)(4)
	3.4 B.4	Drainage from the water supplier's service area.	10826(b)(6)
	3.5	Description of water accounting, including all of the following:	10826(b)(7)
	3.5 A	Quantifying the water supplier's water supplies.	10826(b)(7)(A)
	3.5 B	Tabulating water uses.	10826(b)(7)(B)
	3.5 C	Overall water budget.	10826(b)(7)(C)
	3.5 D	Description of water supply reliability.	10826(b)(8)
	3.6	Analysis of climate change effect on future water supplies analysis	10826(c)
	3.7	Water use efficiency information required pursuant to Section 10608.48.	10826(e)
	3.7 A	Implement efficient water management practices (EWMPs)	10608.48(a)
	3.7 A.1	Implement Critical EWMP: Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).	10608.48(b)
	3.7 A.1	Implement Critical EWMP: Adopt a pricing structure for water customers based at least in part on quantity delivered.	10608.48(b)
	3.7 A.2	Implement additional locally cost-effective and technically feasible EWMPs	10608.48(c)
	3.7 B	If applicable, document (in the report) the determination that EWMPs are not locally cost-effective or technically feasible	10608.48(d)
	3.7 A	Include a report on which EWMPs have been implemented and planned to be implemented	10608.48(d)
	3.7 A	Include (in the report) an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future.	10608.48(d)

AWMP* Location	Guidebook Location	Description	Water Code Section (or other, as identified)
	5	USBR water management/conservation plan may meet requirements for EWMPs	10608.48(f)
	6 A	Lack of legal access certification (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(2)(A)
	6 B	Lack of technical feasibility (if water measuring not at farm gate or delivery point)	CCR §597.3(b)(1)(B), §597.3(b)(2)(B)
	6 A, 6 B	Delivery apportioning methodology (if water measuring not at farm gate or delivery point)	CCR §597.3.b(2)(C),
	6 C	Description of water measurement BPP	CCR §597.4(e)(2)
	6 D	Conversion to measurement to volume	CCR §597.4(e)(3)
	6 E	Existing water measurement device corrective action plan? (if applicable, including schedule, budget and finance plan)	CCR §597.4(e)(4))

* Note where compliance with this requirement is located in your AWMP

2.2 AWMP Content and Template

Elements of an AWMP are identified in the AWMP Template, below. As noted above, the outline/organizational structure is not required but it is encouraged. AWMP Template boxes are for format, only, and do not denote any expectation or requirement as to the quantity of information to be presented. Worksheets in Appendix A are also referenced in the applicable sections. These Worksheets are available for the agricultural water supplier to present AWMP information. However, use of these Worksheets and information elements in the Worksheets are not required.

Information on what the agricultural water supplier may consider submitting in the AWMP Template are provided in Chapter 3, following the same outline as the AWMP Template (e.g., guidance for AWMP Template Section IV.A.3 is found in Section 3.4 A.3).

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AWMP Template

Agricultural Water Management Plan

Prepared Pursuant to [*select* Water Code Section 10826, *or* 1999 AWMC MOU, *or* CVPIA/RAA]

[Insert Agricultural Water Supplier's Name]
[Insert Representative Name]
[Insert Complete Address]

Adopted on [Insert Date of Plan Adoption]

Section I: Introduction

A. Description of Previous Water Management Activities

Insert description of previous water management activities.

B. Coordination Activities

1. Notification of AWMP Preparation

Insert description or agricultural water suppliers can use Worksheet 1 (Appendix A) to assist them in completing this section.

2. Public Participation

Insert description or agricultural water suppliers can use Worksheet 1 (Appendix A) to assist them in completing this section.

C. AWMP Adoption and Submittal

1. AWMP Adoption

A copy of the water supplier signed Resolution of the AWMP Adoption may be attached. Agricultural water suppliers can use Worksheet 1 (Appendix A) to assist them in completing this section.

2. AWMP Submittal

Insert description or agricultural water suppliers can use Worksheet 1 (Appendix A) to assist them in completing this section.

3. AWMP Availability

Insert description or agricultural water suppliers can use Worksheet 1 (Appendix A) to assist them in completing this section.

D. AWMP Implementation Schedule

Insert description or provide AWMP implementation schedule.

Section II: Description of the Agricultural Water Supplier and Service Area

A. Physical Characteristics

1. Size of the service area

Insert description of the size of the service area. Agricultural water suppliers can use Worksheets 2 and 3 to assist them in completing this section.

2. Location of the service area and water management facilities

Insert description of the location of the service area and water management facilities. Agricultural water suppliers can use Worksheets 4 and 6 (Appendix A) to assist them in completing this section.

3. Terrain and soils

Insert description of the service area terrain and soils. Agricultural water suppliers can use Worksheet 7 (Appendix A) to assist them in completing this section.

4. Climate

Insert description of the service area climate. Agricultural water suppliers can use Worksheets 8 and 9 (Appendix A) to assist them in completing this section.

B. Operational Characteristics

1. Operating rules and regulations

Insert description of the agricultural water supplier's operating rules and regulations. A copy of your Operating Rules and Regulations may be attached. Agricultural water suppliers can use Worksheets 10 through 12 (Appendix A) to assist them in completing this section.

2. Water delivery measurements or calculations

Insert description of the agricultural water supplier's water delivery measurements or calculations. Agricultural water suppliers can use Worksheet 13 (Appendix A) to assist them in completing this section.

3. Water rate schedules and billing

Insert description of your water rate schedules and billing. Agricultural water suppliers can use Worksheets 14 through 16 (Appendix A) to assist them in completing this section.

4. Water shortage allocation policies

Insert description of your water shortage allocation policies. You may attach a copy of your Water Shortage Allocation Policy. Agricultural water suppliers can use Worksheets 17 and 18 (Appendix A) to assist them in completing this section.

Section III: Description of Quantity of Water Uses

A. Agriculture Water Use

Insert description of quantity water used for agriculture uses within your service area. Agricultural water suppliers can use Worksheets 19 through 23 (Appendix A) to assist them in completing this section.

B. Environmental Water Use

Insert description of quantity water used for environmental uses within your service area. Agricultural water suppliers can use Worksheet 24 (Appendix A) to assist them in completing this section.

C. Recreational Water Use

Insert description of quantity water used for recreational uses within your service area. Agricultural water suppliers can use Worksheet 25 (Appendix A) to assist them in completing this section.

D. Municipal and Industrial Use

Insert description of quantity of water used for municipal and industrial uses within your service area. Agricultural water suppliers can use Worksheet 26 (Appendix A) to assist them in completing this section.

E. Groundwater Recharge Use

Insert description of quantity of water used for groundwater recharge within your service area. Agricultural water suppliers can use Worksheet 27 (Appendix A) to assist them in completing this section.

F. Transfer and Exchange Use

Insert description of quantity of water used for transfers and exchanges within your service area. Agricultural water suppliers can use Worksheet 28(Appendix A) to assist them in completing this section.

G. Other Water Use

Insert description of quantity of water used for other water uses within your service area. Agricultural water suppliers can use Worksheet 29 (Appendix A) to assist them in completing this section.

Section IV: Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

A. Water Supply Quantity

1. Surface Water Supply

Insert description of quantity of your surface water supplies. Agricultural water suppliers can use Worksheets 30 and 31 (Appendix A) to assist them in completing this section.

2. Groundwater Supply

Insert description of quantity of your groundwater supplies. Agricultural water suppliers can use Worksheets 31 through 34 (Appendix A) to assist them in completing this section.

3. Other Water Supplies

Identify any other water supply(s) you may have and insert description of its (their) quantity(s). Agricultural water suppliers can use Worksheets 30 and 31 (Appendix A) to assist them in completing this section.

4. Drainage From the Water Supplier's Service Area

Insert description of quantity of drainage water from the service area. Agricultural water suppliers can use Worksheet 35 (Appendix A) to assist them in completing this section.

B. Water Supply Quality

1. Surface Water Supply

Insert description of the quality of your surface water supplies. Agricultural water suppliers can use Worksheet 36 (Appendix A) to assist them in completing this section.

2. Groundwater Supply

Insert description of the quality of groundwater supplies. Agricultural water suppliers can use Worksheet 36 (Appendix A) to assist them in completing this section.

3. Other Water Supplies

Insert description of the quality of you other water supplies. Agricultural water suppliers can use Worksheet 36 to assist them in completing this section.

4. Drainage From the Water Supplier's Service Area

Insert description of the quality of drainage water from the service area. Agricultural water suppliers can use Worksheet 37 (Appendix A) to assist them in completing this section.

C. Water Quality Monitoring Practices

1. Source Water

Insert description of your source water quality monitoring practices. Include all source water types including any drainage water considered part of your water supplies. Agricultural water suppliers can use Worksheets 38 and 39 (Appendix A) to assist them in completing this section.

Section V: Water Accounting and Water Supply Reliability

A. Quantifying the Water Supplier's Water Supplies

1. Agricultural Water Supplier Water Quantities:

Insert description of water supply quantification. Agricultural water suppliers can use Worksheets 40 and 41 (Appendix A) or similar tables to assist them in completing this section.

2. Other Water Sources Quantities:

Insert description of water supply quantification. Agricultural water suppliers can use Worksheets 41 and 42 (Appendix A) or similar tables to assist them in completing this section.

B. Quantification of Water Uses

Insert description of tabulation of water uses. Agricultural water suppliers can use Worksheets 43 through 46 (Appendix A) or similar tables to assist them in completing this section.

C. Overall Water Budget

Insert description quantifying overall water budget. Agricultural water suppliers can use Worksheets 47 and 48 (Appendix A) or similar tables to assist them in completing this section.

D. Water Supply Reliability

Insert description of water supply reliability.

Section VI: Climate Change

Insert description of the analysis the effects climate change would have on future water supplies.

Section VII: Water Use Efficiency Information

DWR encourages the agricultural water supplier to briefly describe EWMP implementation effects on operations that may have been experienced or that are anticipated.

A. EWMP Implementation and Reporting

Insert report on which efficient water management practices have been implemented or planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report (for 2012 AWMP, any previous effort), and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. Complete Table VII.A.1 and VII.A.2, below. DWR encourages completing Table VII.A.3 if grant funding is pursued.

Table VII.A.1 Report of EWMPs Implemented/Planned
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

EWMP No.*	Description of EWMP Implemented	Description of EWMPs Planned
Critical EWMPs		
1		
2		
Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Table VII.A.1 Report of EWMPs Implemented/Planned
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

EWMP No.*	Description of EWMP Implemented	Description of EWMPs Planned
11		
12		
13		
14		
Other Optional EWMPs (as applicable)		

Notes:
*EWMP numbers correspond to (Water Code §10608.48(c)

Table VII.A.2 Report of EWMPs Efficiency Improvements
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

Corresponding EWMP No.(s)*	Estimate of Water Use Efficiency Improvements That Occurred Since Last Report *(Quantitative or Descriptive)*	Estimated Water Use Efficiency Improvements 5 and 10 years in future *(Quantitative or Descriptive)*

Notes:
*EWMP numbers correspond to (Water Code §10608.48(c).

Table VII.A.3 Schedule to Implement EWMPs
((Water Code §10608.56 (d))

EWMP	Implementation Schedule	Finance Plan	Budget Allotment	1999 AWMC MOU Demand Measures
Critical				
1 – Water Measurement				C-1
2 - Volume-Based Pricing				No equivalent
Conditional				
1 – Alternate Land Use				B-1
2 – Recycled Water Use				B-2
3 – On-Farm Irrigation Capital Improvements				B-3
4 – Incentive Pricing Structure				C-2
5 – Infrastructure Improvements				B-5
6 – Order/Delivery Flexibility				B-6
7 – Supplier Spill and Tailwater Systems				B-7
8 – Conjunctive Use				B-8
9 – Automated Canal Controls				B-9
10 – Customer Pump Test/Eval.				No equivalent
11 – Water Conservation Coordinator				A-2
12 – Water Management Services to Customers				A-3
13 – Identify Institutional Changes				A-5
14 – Supplier Pump Improved Efficiency				A-6

Table VII.A.3 Schedule to Implement EWMPs ((Water Code §10608.56 (d))				
EWMP	**Implementation Schedule**	**Finance Plan**	**Budget Allotment**	**1999 AWMC MOU Demand Measures**
Other EWMPs:				
1999 AWMC MOU A-4: Improve communication and cooperation among water suppliers, users, and other agencies.				
1999 AWMC MOU B-4: Facilitate voluntary water transfers.				
Grand Total all EWMPs				
Note: There is no equivalent AWMC Critical EWMP #2 or Conditional EWMP #10				

B. Documentation for Non-Implemented EWMPs

Submit information documenting not-technically feasible and/or not locally cost-effective EWMPs. Complete Table VII.B., below.

Table VII.B Non-Implemented EWMP Documentation (Water Code §10608.48(d), §10608.48 (e), and §10826 (e))				
EWMP #	**Description**	***(check one or both)***		**Justification/Documentation***
		Technically Infeasible	**Not Locally Cost-Effective**	
Notes: *Justification/Documentation can include summary cost-benefit analysis or engineering determination with reference to the specific study/agency/engineer responsible for making that determination.				

Section VIII: Supporting Documentation

Agricultural Water Measurement Regulation Documentation (as applicable)

A. Legal Certification and Apportionment Required for Water Measurement

Insert Legal Certification and apportionment methodology, if applicable. Refer to Chapter 6.

B. Engineer Certification and Apportionment Required for Water Measurement

Insert Engineer Certification and apportionment methodology, if applicable. Refer to Chapter 6.

C. Description of Water Measurement Best Professional Practices

Insert description of Water Measurement Best Professional Practices. Refer to Chapter 6.

D. Documentation of Water Measurement Conversion to Volume

Insert documentation of flow, velocity, or water level conversions to water volume, if applicable. Refer to Chapter 6.

E. Device Corrective Action Plan Required for Water Measurement

Insert device repair plan, schedule, budget, and finance plan, if applicable. Refer to Chapter 6.

Other Documents (as applicable)

Attach other supporting documentation, as applicable. Water supplier can also attach their completed checklist here.

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3 Agricultural Water Management Plan Preparation Guidance

This chapter of this Guidebook contains detailed information and instructions to assist agricultural water suppliers in completing an AWMP based on the requirements identified in the Water Code and documentation required for water measurement. It groups the requirements by topic and in an order that an agricultural water supplier can follow while preparing its AWMP. Each section includes the pertinent legislative reference, and references the AWMP Template and/or Worksheet the water supplier can use. Information an agricultural water supplier can include in its AWMP, is also suggested.

In preparing an AWMP, the agricultural water supplier should consider not only what is legally required, but also what may be needed to make it a comprehensive longer-term water supply planning document. While there is certain required information that is determined by statutes an agricultural water supplier has the discretion to present the information in whatever manner the agricultural water supplier chooses.

It is suggested that agricultural water suppliers with mutual needs work together to develop agreements/MOUs to prepare and/or implement regional AWMPs; however, regional agreements or AWMPs are not required. If a regional approach to preparing an AWMP is elected, the AWMP should describe mutual agreements/MOU with other signatories or agencies, and should meet or exceed the requirements of the Water Code.

Chapter 3 is organized consistent with the AWMP Template outline (Section 2.2) and DWR uses the general organizational outline, below, to discuss the contents of an AWMP. Relevant Worksheets are referenced where applicable.

3.1 AWMP Preparation and Adoption

This section of the AWMP describes information on previous water management activities, how the AWMP was prepared and coordinated with other agencies and the public, how/when it was adopted, and submittal/availability of the AWMP. Although the Water Code does not require the agricultural water supplier to present the following information in this format, it does require compliance with the elements identified below. See Section I of the AWMP Template.

All agricultural water suppliers, regardless of whether they submit plans through the Water Code (Option 1), 1999 AWMC-MOU (Option 2), or USBR CVPIAA/RRA (Option 3) process should follow the Water Code plan adoption and submittal requirements. Adoption and submittal requirements for Option 1 are discussed in sections B and C, below. Refer to Chapters 4 and 5 for what to do under Option 2 and Option 3 processes, respectively.

A. Description of Previous Water Management Activities (Water Code §10826(d)).

*"Describe previous water management activities." (*Water Code **§10826(d)***).*

Under this element, the agricultural water supplier can provide the name of any previous water management plan, program under which the previous plan was developed, adoption date by the water supplier, approval or acceptance date (by the AWMC or USBR, respectively), management agency and representative, and other pertinent information, including any amendments and/or revision dates.

B. Coordination Activities

1. Notification of AWMP Preparation

> *"An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision."* (Water Code **§10821(a)**)

To describe Notification of AWMP preparation the agricultural water supplier is encouraged to provide supporting documentation in the AWMP. This could include a list of contacted cities and counties, copies of the notice of preparation, and copies of any other records demonstrating compliance. If the agricultural water supplier chooses to also notify other agencies, a list of these agencies could be provided.

If the agricultural water supplier chooses to consult with and obtain comments from contacted city(s), county(s), or any other agencies, a list of each agency and organization contacted or involved in the preparation, discussion, or coordination of the AWMP can be provided. A description of the coordination process, outreach materials used and any substantial comments that affected development of the AWMP, and if the comments were incorporated in the AWMP would also could be provided.

DWR encourages the use of Worksheet 1 to provide information showing compliance with notification requirements.

2. Public Participation

> *"Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of*

hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan" (Water Code **§10841**).

Government Code **§6066** states that:

"Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day."

Public Water Suppliers: To report the above listed requirements, publicly-owned agricultural water suppliers can provide copies of the public notifications on hearing time and place, and copies of the notice of the availability of the AWMP (or amendment to the AWMP) for public review. A description of any substantial public comments that affected adoption or amendment of the AWMP would be beneficial.

Private Water Suppliers: To report public participation, privately-owned agricultural water suppliers can provide documentation of the process used to comply with the reasonably equivalent notice within their service area and a reasonably equivalent opportunity for the public otherwise afforded through a public process to provide input on the AWMP. This could include information such as copies of notices in the local newspaper, website postings, copies of flyers/letters sent out, a list of mailings, copies of a public meeting notification, or other mechanisms used to notify the public within their service area and to provide opportunity for their input on the AWMP. A description of any substantial public comments that affect adoption or amendment of the AWMP could be provided.

Copies of a proposed AWMP can also be submitted to local, regional, state, and federal agencies; special districts; land use agencies; and, the public (business, environmental, social) to notify interested parties that an AWMP is under preparation and to allow opportunity for their input into the AWMP prior to notification of a public hearing or similar public review.

Although incorporation of comments from the Notification and Public Participation processes is not mentioned in the statute, because this is a planning document, addressing the potential issues in the AWMP could assist in facilitating implementation and provide a stronger basis or rationale for decisions.

The agricultural water supplier can use of Worksheet 1 to provide information showing compliance with public participation requirements.

C. AWMP Adoption, Submittal, and Availability

Specific requirements for AWMP adoption and submittal are contained in the Water Code cited below. DWR encourages the use of the AWMP Template and/or Worksheet 1 to report AWMP adoption, submittal, and availability compliance.

1. AWMP Adoption

> "*After the public hearing, the plan shall be adopted as prepared or as modified during or after the hearing*." (Water Code **§10841**)
>
> "*Amendments to, or changes in the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)*." (Water Code **§10820(b)**)

The agricultural water supplier is encouraged to include a copy of the Resolution of Plan Adoption in AWMP Section VIII to show compliance with Water Code plan adoption requirements.

2. AWMP Submittal

> "*An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes*." (Water Code **§10843(a)**)

Within 30 days of adoption, the agricultural water supplier must submit copies of the AWMP, amendments, or changes to the AWMP to the following entities (Water Code **§10843(b)**):

> *"The DWR.*
>
> *Any city, county, or city and county within which the agricultural water supplier provides water supplies.*
>
> *Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.*
>
> *Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.*

Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

The California State Library.

Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies."

Refer to Section 1.6 of this Guidebook for details on how to submit the AWMP to DWR and the California State Library.

3. AWMP Availability

"*Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site* ((Water Code **§10844 (a)**)*. An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site*." (Water Code **§10844 (b)**)

The agricultural water supplier should report compliance with this requirement by listing in the AWMP, the website address and link on their Internet Web site along with the date of posting. Alternatively, if the agricultural water supplier does not have an Internet Web site, they can document submittal of the electronic copy to DWR for posting on DWR Website. Electronic copies sent to the DWR should preferably be in Adobe™ pdf or MS-Word™ format.

D. AWMP Implementation

"*An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier*" (Water Code **§10842**).

The Water Code requires water supplier to implement its plan in accordance to the schedule presented in its AWMP. The Water Code requires information on which EWMPs are implemented and which EWMPs are planned for implementation. The Agricultural Water Measurement Regulation also requires that certain schedule information be included in the AWMP if a water measurement device corrective action plan is required.

DWR encourages the agricultural water supplier to provide a general schedule for implementation of the AWMP. The EWMP implementation and water measurement corrective action plan schedules

can be described in Sections VII and VIII of the AWMP, respectively.

3.2 Description of the Agricultural Water Supplier and Service Area

Water Code **§10826 (a)** requires a description of the agricultural water supplier and the service area:

> *"(a) Describe the agricultural water supplier and the service area, including all of the following:*
>
> *(1) Size of the service area.*
>
> *(2) Location of the service area and its water management facilities.*
>
> *(3) Terrain and soils.*
>
> *(4) Climate.*
>
> *(5) Operating rules and regulations.*
>
> *(6) Water delivery measurements or calculations.*
>
> *(7) Water rate schedules and billing.*
>
> *(8) Water shortage allocation policies."* (Water Code **§10826(a)**)

It should be noted that while the legislation requires a description of these elements in the AWMP, details are not specified. In this section, this Guidebook suggests a reasonable level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning and provide information to address Water Code **§10826 (b)** requirements for a description of the quantity and quality of water resources of the agricultural water supplier. This Guidebook organizational outline groups descriptions into Physical Characteristics – elements (a)(1) to (a)(4) and Operational Characteristics – elements (a)(5) to (a)(8). See Section II of the AWMP Template.

This section also provides a basis for evaluating structural or operational improvements as well as to provide the basic information about physical and operational aspects that may affect water management.

This section is also an opportunity to provide some background information such as the agricultural water supplier date of formation, source(s) of water supply (such as Central Valley Project (CVP), State Water Project (SWP), local surface or groundwater), or any other pertinent information.

A. Physical Characteristics

1. Size of the service area (Water Code §10826 (a)(1))

While the water supplier is required by the Water Code to describe the size of the service area in the AWMP, details regarding how to describe the size are not specified in the Water Code requirements. To facilitate planning and analysis, it is suggested that the water supplier include a calculation of:

a) Gross acreage within the service area boundary

Expected changes to the service area size or boundaries can also be identified. If there are special management or usage areas, reporting the sizes of these areas could assist the agricultural water supplier in water use efficiency determination, management, and planning. For instance, special management or usage areas might be identified if water supplies are typically distributed on a rotational basis. Reporting the acreage of each sub-area within the service area would assist in water use calculations and efficient water management. (Refer to Worksheets 2 and 3)

b) Average irrigated acres per year

The agricultural water supplier is encouraged to report average irrigated acres in the service area, as well as the method used to calculate/determine irrigated acreage. If irrigated acreage widely varies from year to year, an average of the past five years could be used. If there are special management or usage areas, reporting average irrigated acres within each area could be used. (Refer to Worksheets 2 and 3)

2. Location of the service area and water management facilities (Water Code §10826 (a)(2))

A description of the location of the service area and water management facilities is required by the Water Code. However, the manner in which the water supplier service area and water management facilities are described is at the discretion of the water supplier. To facilitate planning and analysis, it is suggested that the water supplier include:

- A map of the service area showing county or other pertinent boundaries and, where possible, existing water diversion(s). Planned water diversions, if applicable, could also be described and/or mapped.
- A map showing the water storage, conveyance, controls, and delivery system components within the service area such as: canals, pipelines, drains, water quality testing stations, water measurements locations, pumping stations, reservoirs, and others.
- A map showing any special management or usage areas within the service area, if applicable.

- Text descriptions accompanying maps would also be beneficial. If maps are not available, a written description can be included. Descriptions of the supplier's facilities can also be included in this section as well as their location(s) on a map.

Agricultural water suppliers can use Worksheets 4 along with any applicable maps to describe the location of the service area and water management facilities. Oversized maps can be included as a folded attachment/exhibit if necessary.

3. Terrain and soils (Water Code §10826 (a)(3))

A description of the terrain and soils is required by the Water Code. However, the manner in which the service area terrain and soils are described is at the discretion of the water supplier. It is suggested that the water supplier:

- Describe the topography of the water supplier's service area (e.g., hilly, flat, rolling, sloping to a water course, and others).
- Describe the local surface drainage characteristics of the service area. Include information, if applicable, on water courses, wetlands, and direction of surface runoff and where drainage features are located. A map with labeled features and drainage directions would be beneficial.
- Describe the general soil classifications found in the service area and where the soils are generally located. A map showing areas of major soil types is encouraged. It is also suggested that information such as erosion and runoff potential (e.g., soils hydrologic group), infiltration/percolation constraints (e.g., presence shallow bedrock, shallow water table, heavy soils, sandy soils and other characteristics), and other irrigation/water management information for the soils types be included in the description.

The Natural Resources Conservation Service (NRCS) provides general soils maps that may be a useful tool. Soils classification and water management properties information can be obtained at: http://soils.usda.gov/. The WebSoil Survey tool at this location can be used to delineate portions of the service area and calculate summary information for soils within the area.

It may also be useful to include a discussion on the potential for terrain and soil conditions to affect water operations and management within the service area. What constraints may be present? What opportunities may be present?

Agricultural water suppliers can use Worksheet 7 and associated information along with any applicable maps to describe the service area terrain and soils.

4. Climate (Water Code §10826 (a)(4))

A description of the climate is required by the Water Code. However, the detailed description of the service area climate is at the discretion of the water supplier. It is suggested that the water supplier provide a description of the historic climate in the area including, but not necessarily limited to: (refer to Worksheet 8)

- Average monthly and annual precipitation
- Average monthly maximum and monthly minimum precipitation, and the months in which these occur
- Average monthly maximum and minimum temperatures and the months in which these occur
- Average annual wet season (typically October through March) precipitation.

As a general rule, where available, climate averages should be calculated based on at least 20 years of historical data. Regardless, the years used to determine the average should be identified. The National Weather Service provides weather data from climatological stations throughout California and is a useful tool to describe historical climates refer to Climate Summaries at: http://www.wrcc.dri.edu/

Other useful climate information may be reported in order to facilitate water management and planning and in determining the overall water budget within the service area. Such information could include: (refer to Worksheet 9)

- Extreme conditions information (e.g., daily maximums and minimums, 100-year storm events, and others).
- Monthly average reference evapotranspiration (ETo) for the area(s) to facilitate future water use efficiency calculations/analysis. (Refer to DWR California Irrigation Management Information System (CIMIS) for ETo information and data at: http://www.cimis.water.ca.gov/cimis/welcome.jsp

For areas within the water supplier's service area that are known to have substantially different climate conditions, a qualitative or quantitative description of the differences and how this may affect water management decisions and operations would also be beneficial. Additional tables can be used to summarize climate characteristics of areas experiencing different climate characteristics.

B. Operational Characteristics

1. Operating rules and regulations (Water Code §10826 (a)(5))

A description of the operating rules and regulations is required by the Water Code. How they are described is at the discretion of the water supplier. Agricultural water suppliers can attach a

copy of their operating rules and regulations and/or describe their water allocation policy(s); the lead time necessary for water orders and water shut-off; any policies regarding return flows and /or drainage leaving the water supplier's service area; restrictions on deliveries; and, other practices, as appropriate. (Refer to Worksheets 10 through 12).

2. Water delivery measurements or calculations (Water Code §10826 (a)(6))

A description of the water delivery measurements or calculations is required by the Water Code. The manner in which these are described is at the discretion of the water supplier. In this section, the agricultural water supplier is encouraged to provide information on the type(s) of measurement device(s), calibration, and maintenance, along with the estimated level of measurement accuracy. (Refer to Worksheet 13).

The agricultural water supplier's compliance with the water measurement EWMP is discussed in Section VII of the AWMP. Details on the water measurement system, as applicable for compliance with the Agricultural Water Measurement Regulations (refer to Chapter 5 of this Guidebook) can be included in Section VIII (Supporting Documentation) of the AWMP.

3. Water rate schedules and billing (Water Code §10826 (a)(7))

A description of water rate schedules and billing are required by the Water Code. The details for describing these are at the discretion of the agricultural water supplier. It is suggested that the AWMP describe: (refer to Worksheet 14 through 16)

- The basis for agricultural usage water charges and the adopted pricing structure. A copy of the water supplier's written operating rules and regulations may be used to provide this information if they describe the basis for water charges at least in part based on quantity delivered (i.e., by quantity and other factors such as acre, crop, land assessment, or other charges). The pricing structure is a critical EWMP that must be implemented and reported on in the AWMP in accordance with Water Code **§10826(e)** and **§10608.48(b)**. Refer to Section 3.7 for details on EWMPs.
- The rate structure used (e.g., allocation-based, uniform, or increasing block rate).
- The billing frequency (e.g., monthly, bimonthly, annually).

4. Water shortage allocation policies (Water Code §10826(a)(8))

A description of the water shortage allocation policies is required by the Water Code. What constitutes a description of the water shortage allocation policy has not been identified and is left to the discretion of the agricultural water supplier; it is suggested, however, that if the water supplier has a Water Shortage Allocation Policy, the agricultural water supplier attach a copy of the policy in Section VIII of the AWMP and refer to the attachment in this section. If the supplier

does not have such a policy, the agricultural water supplier can describe how reduced water supplies are allocated.

If the water supplier has a Water Shortage Contingency Plan, this plan may be referenced here in Section VIII. If there is no water shortage contingency plan, a description of actions that will be taken by the agricultural water supplier in the event of a catastrophic reduction in water suppliers is encouraged. The Water Shortage Contingency Plan or water shortage allocation policies description can also include an assessment of how responding to water shortages affects revenues and expenditures and how the agricultural water supplier would address these potential effects. DWR also encourages the agricultural water supplier to include a description of their policies that address wasteful use of agricultural water, along with a description of enforcement methods, if applicable. (Refer to Worksheets 17 and 18)

3.3 Description of the Quantity of Water Uses of the Agricultural Water Supplier (Demands)

This section describes the water uses for agricultural, environmental, recreational, municipal and industrial, groundwater recharge, transfers and exchanges, and other water uses within the agricultural water supplier's service area. See Section III of the AWMP Template.

Water Code **§10826 (b)** requires a description of the quantity of all underlying items, including the water uses identified under **§10826 (b)(5)**. Section **10826 (b)(5)** requires that the AWMP include a description of:

> "*Water uses within the agricultural water supplier's service area, including all of the following:*
>
> *(A) Agricultural.*
>
> *(B) Environmental.*
>
> *(C) Recreational.*
>
> *(D) Municipal and industrial.*
>
> *(E) Groundwater recharge.*
>
> *(F) Transfers and exchanges.*
>
> *(G) Other water uses."*

Although the legislation also does not require a specific method, timescale, or other parameters for quantifying water uses under this element in this section, this Guidebook provides a suggested level of detail for tabulating water uses and an overall water budget to assist the agricultural water supplier in

preparing an AWMP that can be used for water management planning and for addressing Water Code **§10826 (b)(7)** requirements (tabulating water uses and overall water budget).

If available, it is suggested (but not required) that quantities of water used from each water source within the service area, for each water use type, be reported, along with additional information that can be used in determining the overall water budget. This would allow for greater flexibility in water management planning.

In order to provide a meaningful and consistent basis for water accounting in accordance with Water Code **§10826 (b)(7)**, it is suggested that:

- Information be reported using the same year(s) and timeframe for all water use types as listed under Water Code **§10826 (b)(5)**.
- Monthly or bi-monthly water usage data is provided for each water use type.
- Data for each water use type can be presented in a similar format as shown in the Worksheets 20 through 29. Depending upon the number of locations or complexity regarding each type of water use in the service area, this table can be expanded or summarized as necessary. For instance, for a particular water use type, if the same amount of water is required each year and/or each month, it would not provide more information to report monthly use for the past five years; reporting the consistent demand quantity and a notation to that effect would be essentially the same.

If special management or usage areas have been identified in Section II of the AWMP, it would further assist in water management planning to provide a table of water use estimates, delineating the water use in each applicable area for each water use type (e.g., agriculture, environmental, and others).

It is suggested that the AWMP also include a detailed description of their basis for reporting water quantities:

1. What year(s) are used to describe the water quantities and if there were any special conditions relevant to the determination of quantities (e.g., excessively wet year, water measurement system only partially implemented, couldn't measure a particular source or use, or others).
2. A Representative Year and/or the Plan Cycle year can be used as a basis for determining water quantities;

However, DWR encourages that water supplier to use the same basis (year(s)) and timeframe (e.g., Water Year months, calendar year, or other) to report water quantities in all tables/descriptions in Sections III through IV of the AWMP (detailed in Sections 3.3 through 3.5 of this Guidebook). For example, the agricultural water supplier could use the first Plan Cycle year 1 (2012) data and identify that data is based on the Water Year from October 2011 to September 2012.

DWR encourages agricultural water suppliers to report water quantities based on a Plan Cycle yearly-basis and include information for the past five years. For 2012 plans, reporting quantities for at least year 2012 is encouraged.

If a Representative Year is used to describe and tabulate water uses and supplies, it should be defined and the year(s) it is based on identified. The Representative Year can be a 'normal' year or an average of years. The rationale/description of what constitutes a Representative Year should be included in this section, if applicable (refer to Worksheet 19).

If water uses are estimated instead of measured, DWR encourages the agricultural water supplier to provide justification and documentation of calculations and data used for the estimation. This information can be summarized in the discussion pertaining to quantification of the specific supplies and/or uses, with details included as an attachment in Section VIII. This can also provide the basis for the Aggregated Farm Gate Delivery Report.

For water management planning, it is often advantageous to estimate future water use demands. While not required, the agricultural water supplier can also include a description of any anticipated changes or trends in water demand within their service area to facilitate the AWMP's use as a planning document. This could include changes in water use related to:

- Changes in crop types resulting in different crop water use requirements than current conditions;
- Expected market fluctuations that would affect the type and amount of crops grown;
- Increased water use efficiency that would reduce water uses through reduced non-recoverable water;
- Increased energy costs that would potentially reduce the amount of water used from higher energy sources (e.g., pumped groundwater); and/or,
- Anticipated changes in land use (e.g., conversion of agricultural land to developed land).

A. Agriculture Water Use (Water Code §10826 (b)(5)(A))

A description of the quantity of agricultural water use within the service area is required by Water Code. It is suggested that the agricultural water suppliers provide the following information in the AWMP: (refer to Worksheet 20)

- Tabulation of water delivered to all of the agricultural water supplier's agricultural customers within the service area
- To the extent available, an estimation of the private groundwater used to meet agricultural water use in the service area

- To the extent available, an estimation of other water sources used to meet agricultural water use demands in the service area from sources such as recycled water, precipitation, return flows, and others.

The agricultural water supplier can also describe the type and acreage of crops grown in the service area in order to provide data that can be used in tabulating water uses and calculating the water budget (refer to Section 3.5 and Section V of Appendix A, in this Guidebook). Suggested additional data include: (refer to Worksheet 21 through 23)

- Types and acreage of crops grown within the service area
- Seasonal evapotranspiration amounts for each crop type
- Water required for cultural practices (e.g., leaching requirement, seedbed preparation or weather modifications)
- The types of irrigation systems used for each crop
- Amount of irrigated acres
- Alternate cropping systems that may affect water use each year

DWR's CIMIS database is a useful tool for obtaining crop ET in your area:

http://wwwcimis.water.ca.gov/cimis/info.jsp

B. Environmental Water Use (Water Code §10826 (b)(5)(B))

A description of quantity of environmental water use is required by the Water Code. DWR encourages the agricultural water supplier to describe what environmental resources (e.g., wetlands, vernal pools, streams, wildlife refuges) are located within their service area, which types and areas actively receive water supplies from the agricultural supplier, and what, if any, are the dedicated/jurisdictional amounts the supplier must deliver. Where possible, a distinction between supplier water and other water used to support environmental resources may be provided. If no environmental use demands are to be accounted for, a simple statement indicating such would be sufficient. (Refer to Worksheet 24)

C. Recreational Water Use (Water Code §10826 (b)(5)(C))

A description of the quantity of recreational water use is required by the Water Code. DWR encourages the agricultural water supplier to describe what recreational uses in the service area are supported by their water supplies and to quantify the amount of water to maintain these uses/facilities. These uses could be demands such as releases to provide recreational flows or the amount of water left in reservoirs to provide boating access. Identification and quantification of any applicable jurisdictional requirements is also encouraged. If no recreational uses are to be accounted for, a simple statement indicating such would be sufficient. (Refer to Worksheet 25)

D. Municipal and Industrial Use (Water Code §10826 (b)(5)(D))

A description of the quantity of municipal and industrial uses is required by the Water Code. DWR encourages the agricultural water supplier to describe what municipal and industrial uses in the service area receive water from the agricultural water supplier, as well as how much water is typically used by these entities. If no municipal or industrial uses are within the service area, a simple statement indicating such would be sufficient. (Refer to Worksheet 26)

E. Groundwater Recharge Use (Water Code §10826 (b)(5)(E))

A description of the quantity of groundwater recharge uses is required by the Water Code. DWR encourages the agricultural water supplier to describe the amount of water used annually for groundwater recharge (on a monthly or bimonthly basis, if available), method of recharge, location of recharge, and the amount of any recharge water applied for conjunctive water uses. Identification and quantification of any jurisdictional or agreement-based recharge commitments is also encouraged. If no groundwater recharge is to be accounted for, a simple statement indicating such would be sufficient.

If percolating irrigation water contributes to groundwater recharge in the overall water balance, this component should be excluded from the description of the quantity of Groundwater Recharge Use, unless this excess irrigation water was applied specifically for groundwater recharge. (Refer to Worksheet 27)

Although not required by legislation, if the agricultural water supplier contributes to groundwater recharge outside of the service area, it is encouraged that this groundwater recharge use also be identified and quantified in the AWMP.

F. Transfer and Exchange Use (Water Code §10826 (b)(5)(F))

A description of the quantity of transfers and exchanges water uses within is required by the Water Code. DWR encourages the agricultural water supplier to describe the annual amount of water (if available, a monthly or bimonthly basis is preferred) that is transferred and/or exchanged into or out of the water supplier's service area. The agricultural water supplier is also encouraged to describe any typical water transactions or agreements and describe: to whom/where the water is transferred/exchanged; how often this typically occurs; and, the typical quantity and source of water. (Refer to Worksheet 28)

If transactions and/or exchanges do not occur on a regular basis it is suggested that the agricultural water supplier also provide information on the likelihood of transactions and/or exchanges and, if possible, the anticipated quantities or range of quantities. If no transactions or trades occur or are part of any agreement, a simple statement indicating such would be sufficient.

G. Other Water Use (Water Code §10826 (b)(5)(G))

A description of the quantity of any other water uses is required by the Water Code. DWR encourages the agricultural water supplier to identify other water uses and quantify the annual amount of water that is used for these uses (if available, a monthly or bimonthly basis is preferred). Other water uses could include uses such as road dust abatement; facility/structure cleaning, flushing, operations, and management; and other potential demands on water supplies. If there are no other water uses, a simple statement of such would suffice. (Refer to Worksheet 29)

3.4 Description of Quantity and Quality of the Water Resources of the Agricultural Water Supplier

The intent of this section is to describe the sources of water available to the agricultural water supplier. It describes the quantity and quality of each water source including surface water, groundwater, and other sources of water supplies. This section also provides information on the quantity and quality of drainage from the service area, as well as source water quality monitoring practices. See Section IV of the AWMP Template.

A. Water Supply Quantity

Water Code **§10826** requires that the AWMP:

> *"(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*
>
> *(1) Surface water supply.*
>
> *(2) Groundwater supply.*
>
> *(3) Other water supplies.*
>
> *(4) Source water quality monitoring practices.*
>
> *(5) Water uses within the agricultural water supplier's service area…*
>
> *(6) Drainage from the water supplier's service area."*

[Note: Item (5) is addressed in Section 3.3 of this Guidebook.]

Although the legislation does not specify the mechanisms or level of detail that would satisfy requirements for describing the quantity of water supplies, this Guidebook provides a process and level of detail that can be used for water management planning and for addressing **§10826 (b)** and **§10826 (b)(7)** requirements.

For each water source type, DWR encourages agricultural water suppliers to include discussions on origin (there may be multiple origins for a particular water source—for example, groundwater supplies can be obtained from different groundwater basins), customers, and use limitations of each water supply source in either the AWMP Template or the Worksheets provided.

If wholesale water supplies are received from another supplier or provided to another water user, the AWMP should make note of this. For water obtained from wholesale sources, the agricultural water supplier can include a reference to the wholesalers UWMP/AWMP and a brief summary of the water supply's origin.

The Water Code requires a description of the estimated or calculated quantities of water supplies for each of the three major categories of water supply sources used within the service area (surface water, groundwater, and 'other' water), as well as a description of the estimated or calculated quantities of drainage water leaving the service area. In order to provide a meaningful and consistent basis for water accounting in accordance with Water Code **§10826 (b)(7)**, it is suggested that:

1. Information can be reported using the same year(s) for all water supply sources listed under Water Code **§10826 (b)** and the service area drainage and for reporting water uses. (refer to Worksheet 19)

2. Monthly or bi-monthly water usage data provided for each water supply sources and the service area drainage.

3. Data for each water supply source and the service area drainage be presented as shown in the Worksheets 20 through 29 or similar format(s). Depending upon the number of locations or complexity of each water supply source or service area drainage outlets, these tables can be expanded as necessary. For instance, for a particular water supply source, if the same amount of water is available each year and/or each month, it is not necessary to report monthly water supplies for the past five years; although a notation to that effect would be helpful. Conversely, if supplies are more complex (e.g., the service area drainage discharges to two different watersheds), multiple tables are advised.

4. The average year water supply quantities and projects to increase water supplies are described for each water supply.

5. The descriptions note any restrictions or operational constraints associated with the supplier's water supplies, if applicable, for each water supply type.

6. Provide information on water transfers and exchanges, both short- and long- term agreements and opportunities.

If quantities are estimated, the agricultural water supplier is encouraged to provide justification and documentation of calculations and data used for the estimation(s) in the AWMP.

If special management or usage areas have been identified in Section II of the AWMP, a table or tables with water supply estimates for each water supply source available to each applicable area would further assist in water management planning.

1. Surface Water Supply (Water Code §10826 (b)(1))

To address the legislative requirements for a description of surface water supply quantities DWR is providing the AWMP Template or the Worksheets for the agricultural water suppliers to include the following surface water supply information: (refer to Worksheets 30 and 31)

- A brief description of the total amounts and types of each of the water supplier's contracted surface water supplies (i.e., CVP Class I water contract for agriculture, SWP water contract for agriculture, exchange contract).
- A brief description of the total amounts of surface water rights including pre-1914 water rights. This description can include the name of the surface water source, location of diversion(s), annual maximum diversion, monthly maximum diversion, diversion rate, and other water rights limitations on use.

For both contracted and water rights surface water supplies, DWR encourages the agricultural water supplier to include in the AWMP:

- The annual amount of water received from each source for representative year or 2012 and Plan Cycle years, if available. (refer to Worksheet 30)
- A description of any restrictions on the time and amount of diversion. (refer to Worksheet 31)
- A description of any anticipated changes in the water supplier's surface water supplies during the next five years. (refer to Worksheet 30)

2. Groundwater Supply (Water Code §10826 (b)(2))

A description of the quantity of groundwater supplies is required by Water Code in the AWMP, DWR encourages the agricultural water suppliers to:

- Identify the groundwater basin(s) directly pumped by the agricultural water supplier to meet demands and briefly describe the basin(s) characteristics and total available groundwater supplies. For managed groundwater basins, a copy of the management plan can be attached as a hardcopy or electronic copy. (see Worksheets 32 and 33)
- Identify the groundwater basin(s) underlying the service area that may be privately used by individual customers to meet water use demands if different from the water supplier's basins. Briefly describe the basin(s) characteristics and total available groundwater supplies within the service area/usage area. (see Worksheets 32 and 33)

- Provide a map showing the location of the agricultural water supplier's wells and groundwater recharge areas, if applicable.

- Provide the annual quantity of groundwater pumped directly by the agricultural water supplier. Worksheet 34 can be used to provide information. Provide the rationale and documentation for the method used if groundwater water supplies are estimated. While a description of the quantity of groundwater pumped by private sources is not required, it is suggested that this information is included for calculating the water budget in Section V. An estimate of private groundwater supplies can also be provided in Worksheet 34.

- If groundwater from a wholesaler is used to meet demands, it is suggested that the agricultural water supplier provide a brief description of the groundwater basin and amount of groundwater supplies available to the agricultural water supplier.

- Describe whether there were limitations or challenges to obtaining groundwater during the time period reported in the AWMP to indicate the "sufficiency" of groundwater pumped. A summary of restrictions on groundwater supplies can be included in Worksheet 31.

If the water supplier operates a conjunctive use program, DWR encourages the agricultural water supplier to describe this program in the AWMP. A description of any changes or expansions planned for the groundwater supply can also be provided.

If the annual available groundwater is not used, this could result in 'banked' water that could be used in a subsequent year. Additionally, surface water recharge of groundwater supplies can also increase the available groundwater supply from year to year. In such a case, Worksheets may need to be adjusted to present groundwater supplies in a meaningful fashion if they are used in the AWMP.

Helpful information necessary to describe ground water basins can be found in California DWR Bulletin 118 available at: http://www.water.ca.gov/groundwater/bulletin118/.Bulletin 118 can be used to identify the basin(s) that underlie the service area and their size, usable capacity, and safe yield. In a few cases, service areas overlie more than one groundwater basin. This bulletin describes the general boundaries of each basin and indicates if there is evidence of overdraft (pumped volume in excess of safe yield).

Information regarding groundwater basins is also available from the California Statewide Groundwater Elevation Monitoring (CASGEM) program developed by DWR. The intent of the CASGEM program is to establish a permanent, locally-managed program of regular and systematic monitoring in all of California's alluvial groundwater basins. This information can be used to further describe the groundwater basin(s) and provide information related to potential supply conditions (e.g., lowering water level trends may indicate a declining groundwater supply). For further information, see: http://www.water.ca.gov/groundwater/casgem/

3. Other Water Supplies (Water Code §10826 (b)(3))

To address the legislative requirements for a description of the other water supplies, the quantity of any long-term water supplies not described above (e.g., recycled water, transfer agreements, desalinated water, stormwater, and any other source water the water supplier considered part of the agricultural water supplier's water supply "portfolio") must be described. It is suggested that that the monthly and annual supply quantities be reported in the AWMP for each type of 'other' water supply. Quantities of "other" water supplies could be included in a table similar to Worksheet 30. Restrictions on uses can also be included in Worksheet 31.

4. Drainage from the Water Supplier's Surface Area (Water Code §10826 (b)(6))

A description of the quantity of drainage from the water supplier's service area is required. DWR encourages the agricultural water supplier to provide calculation(s) or estimation(s) of the annual volume of drainage from the service area and identify where surface and subsurface drainage goes (e.g., to wildlife refuge or other wildlife habitat, beneficial reuse within the service area, discharge to a river or other water course, another water service area, a groundwater aquifer, a saline sink, and/or evaporation ponds). If drainage leaves the service area and is reused, it is suggested that the discharge location and quantity of discharge also be identified. The agricultural water supplier is also encouraged to include a description of any use limitations (e.g., capture and return is not feasible, water quality constraints for irrigation use and others). (Refer to Worksheets 31 and 35)

Also see the SWRCB's Irrigated Lands Regulatory Program regarding the protection of receiving waters from agricultural water discharges available at: http://www.swrcb.ca.gov/

B. Water Supply Quality

The Water Code **§10826** require that the AWMP:

> *"(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*
>
> *(1) Surface water supply.*
>
> *(2) Groundwater supply.*
>
> *(3) Other water supplies.*
>
> *(4) Source water quality monitoring practices"*

The legislation does not specify the mechanisms or level of detail that would satisfy requirements for describing the quality of water supplies. In this section, this Guidebook provides a process and

level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning.

DWR encourages the agricultural water supplier to report average values for water quality parameters. It is suggested that the range of values under the current operational system also be included (i.e., if water quality improvements have been implemented, report only those water quality data for the period following the improvements).

DWR also encourages the agricultural water supplier to include a discussion on whether or not water quality from water supplies would constrain their uses. The AWMP can include an evaluation of the ability of the agricultural water supplier's supplies to support the uses identified in Section 3.3 of this Guidebook. Information on applicable water quality criteria/goals for various use categories can be found in "A Compilation of Water Quality Goals" under the Water Quality Assessment Program available at: http://www.waterboards.ca.gov/. It is also suggested that any planned improvements for water quality be identified in the AWMP.

If extensive information is available, tables and reports on water quality can be included as an attachment or appendix with a brief summary in the AWMP main body. Where quantified information is not available, a qualitative description of water quality must be provided.

The AWMP must also include a description of the source water quality monitoring practices. If water quality monitoring of water supply sources has been conducted by the agricultural water supplier or their wholesaler, the monitoring practices must also be described in the AWMP (Section IV.C).

1. Surface Water Supply (Water Code §10826 (b)(1))

To address the legislative requirement for a description of the surface water supply quality DWR encourages the agricultural water supplier to provide water quality information as described above (Section 3.4.B). A table similar to Worksheet 36 can be used to provide information. If data is not available, it is suggested that the agricultural water supplier identify:

- Potential or known water quality conditions as described in the Regional Basin Plan for the surface water source
- If the surface water source is listed as impaired on the 2010 303(d) list, and if so, for what pollutants (refer to the Water Quality Assessment/TMDL Program for the 2010 or most current 303(d) list at: http://www.waterboards.ca.gov/)
- If the surface water source is subject to a Total Maximum Daily Load (TMDL), and if so, for what pollutants (for applicable TMDLs within the agricultural water supplier's regional basin, refer to the Water Quality Assessment/TMDL Program available at: http://www.waterboards.ca.gov/)
- Any known or potential water quality constraints to its use within the service area, for uses identified in Section 3.3 of this Guidebook.

2. Groundwater Supply (Water Code §10826 (b)(2))

To address the legislative requirement for a description of the groundwater supply quality, DWR encourages the agricultural water supplier to provide water quality information as described above (Section 3.4.B). A table similar to Worksheet 36 can be used to provide information. If data is not available, it is suggested that the agricultural water supplier identify potential or known water quality conditions for the groundwater source as described in the Regional Basin Plan, DWR Bulletin 118, and/or any applicable groundwater management plan or document and identifying any potential water quality constraints to its use within the service area, for the uses described in Section 3.3.

Some groundwater useful quality data may be available at:

- DWR's Water Data Library: http://www.water.ca.gov/waterdatalibrary/
- GAMA – Groundwater Ambient Monitoring & Assessment Program: http://geotracker.waterboards.ca.gov/ and http://www.waterboards.ca.gov/water_issues/programs/gama/report_depot.shtml
- Groundwater Basin Assessments: http://www.water.ca.gov/groundwater/data_and_monitoring/gw_basin_assessment.cfm

3. Other Water Supplies (Water Code §10826 (b)(3))

A description of the other water supply quality is required by the Water Code for all "other" water supply sources listed in Section 3.4.A (Water Supply Quantity sub-section). The extent of description and availability of information will depend upon the supply source. For recycled water, quality measurements should be available under the applicable Waste Discharge Requirement permit. DWR encourages the agricultural water supplier to provide water quality information for "other" supplies as described above for surface water and groundwater supplies. A table similar to Worksheet 36 can be used to provide this information.

4. Drainage from the Water Supplier's Surface Area (Water Code §10826 (b)(6))

To address the legislative requirement for a description of the drainage water quality, DWR encourages the agricultural water supplier to provide water quality information as described above (Section 3.4.B). Drainage water quality can be measured or estimated based on references, calculations, or other methods to be identified in the AWMP. DWR also encourages identifying potential and known usage constraints associated with drainage water quality. Refer to the SWRCB's Irrigated Lands Regulatory Program regarding the protection of receiving waters from agricultural water discharges available at: http://www.swrcb.ca.gov/. (See Worksheet 37)

C. Source Water Quality Monitoring Practices (Water Code §10826 (b)(4))

The AWMP must describe the source water quality monitoring practices as required by the Water Code. This includes the water quality monitoring program for drainage water if it is used as a water supply source. Monitoring allows the agricultural water supplier to assess water quality problems that may limit the use of available source water.

DWR encourages the agricultural water supplier to include: (refer to Worksheets 38 and 39)

- A description of water quality monitoring practices currently conducted for surface water and groundwater supplies including: the timing and frequency of monitoring, what constituents are analyzed, and the location of sampling/monitoring
- The outlet location and whether drainage is surface or sub-surface for drainage water supplies
- Contaminants (e.g., selenium, boron, pesticides) that may limit the reuse of drainage water or that may affect discharge locations (e.g., drainage to an environmentally sensitive area)
- A description of the data evaluation process and potential mitigation of identified water quality constraints

A description of the water quality monitoring practices of agricultural surface drainage from the water supplier's service area is not required if it is not used as a source of water supplies. However, because Water Code **§10826 (b)(6)** requires a description of drainage water quality, it is suggested that the drainage water quality monitoring program also be described in the AWMP, regardless of its status as a source of water supplies. (Refer to Worksheet 39; multiple tables can be used for multiple drainages, as applicable).

3.5 Water Accounting and Water Supply Reliability

The purpose of this section is to bring together water use and supply for an overall picture of agricultural water used and the ability of water supplies to meet water demands within the supplier's service area. The Water Code requires that water accounting of water supplies, water uses, and the overall water budget, along with a description of water supply reliability, be presented in the AWMP. See Section V of the AWMP Template.

The Water Code **§10826** require that the AWMP:

> *"(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:*
>
> *(7) Water accounting, including all of the following:*
>
> *(A) Quantifying the water supplier's water supplies.*

(B) Tabulating water uses.

(C) Overall water budget."

The legislation does not specify the mechanisms or level of detail that would satisfy requirements for water accounting. In this section, this Guidebook provides a reasonable process and level of detail to assist the agricultural water supplier in preparing an AWMP that can be used for water management planning and for addressing Water Code **§10826 (b)(7)** requirements.

Information presented in AWMP Sections III and IV can be used to help complete the Water Code requirements for water accounting. As an overview of water supply use within the service area, annual amounts are appropriate; however, to provide more meaningful information to calculate the water budget annual amounts, additional water supply and use information (e.g., monthly/seasonal values, effective precipitation amounts, water losses, and others) can be included in this section. The additional information would also provide the agricultural water supplier with some data useful for estimating water use efficiency, if desired.

A. Quantifying the Water Supplier's Water Supplies (Water Code §10826 (b)(7)(A))

The legislation requires the agricultural water supplier to quantify their water supplies in the AWMP as required by the Water Code. Information from AWMP Section IV may be used to assist in quantifying the agricultural water supplier's water supplies. DWR encourages the agricultural water supplier to report water supply quantities along with a description of the calculations/process used to arrive at the reported quantities in the AWMP as follows:

- **Quantification of all surface water supplies, imported to or originating within the water supplier's service area.** Include current (e.g., 2012) and historic water supplies available for use within the service area. Identify conditions (e.g., drought, wet year, other) during which these amounts are available. Include return flows, if applicable. Surface water supplies would also include an estimate of precipitation captured/falling in the supplier's storage facilities and surface conveyances. (refer to Worksheet 40)
- **Recycled water available quantities.** Include current (e.g., 2012) and historic amounts available for use. Identify conditions (e.g., drought, wet year, other) during which these amounts are available. It would also be beneficial to note if more available recycled water could be expected in the future. (refer to Worksheet 40)
- **Other water supplies.** Estimate of any other water supplies that might be available (e.g., desalinated water) and include current (e.g., 2012) and historic availability. Identify conditions (e.g., drought, wet year, other) during which these amounts are available or constrained. (refer to Worksheet 40)
- **Quantification or estimate of groundwater that can be extracted by the water supplier, including any imported groundwater supplies**. Include current (e.g., 2012) and historic

minimum, average, and maximum water supplies available for use. Identify conditions (e.g., drought, wet year, other) during which current and historic amounts have been/are available if supplies are limited based on operations/contract conditions. If extracted amounts are unlimited, identify the conditions under which minimum, average, and maximum amounts may occur (e.g., climate, pump capacities, others). (refer to Worksheet 41)

The legislation requires that only the water supplier's water supplies be quantified in the AWMP. However, understanding the amount of **all** water available for meeting agricultural needs within the service area may be helpful for estimating the performance of efficiency improvements, where other/additional improvements could be effective, and other water management considerations. As such, it is suggested that the agricultural water supplier also provide information on the following in the AWMP:

- **Estimated groundwater supplies available from non-water supplier parties** (e.g., private wells) within water supplier's boundaries (if records are not available, provide an estimate and basis for estimation)**.** (refer to Worksheet 41)

- **Estimate of effective precipitation.** Estimate the annual effective precipitation within the service area. Not all precipitation that falls down can be used by crops; for instance, some precipitation runs off the landscape, some is evaporated, and some percolates too deep beyond the crop rooting zone (refer to "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use: A report to the Legislature, pursuant to Section **10608.64** of the California Water Code, May 8, 2012", as a reference; this is not a required methodology to implement). Include current (e.g., 2012) and historic effective precipitation. Describe the relationship between these values and surface and groundwater supply availability; effective precipitation will affect how much other water supplies are required to meet crop consumptive demands. (refer to Worksheet 42)

- **Other water sources (if any).** Identify any other sources of water supply that might be available for agricultural uses that are not included in the agricultural water supplier's portfolio (e.g., private groundwater, unmanaged return flows). Include current (e.g., 2011-2012) and historic water suppliers available for use. Identify conditions (e.g., drought, wet year, other) during which these amounts are available or constrained.

An assessment of future water supply is not required in the AWMP. However, understanding potential future water supplies is an important component of the water management planning process. As such, identification of potential changes in future water supplies such as environmental constraints, drought, or changes in water storage capacity is encouraged. Possible management strategies to maximize future water supplies and/or future water supply reliability, such as improvements in conjunctive use programs or other water management options, could also be discussed.

B. Tabulating Water Uses (Water Code §10826 (b)(7)(B))

The Water Code requires a tabulation of water uses in the AWMP. Information from AWMP Section III may be used to assist in completing the Water Code requirements for tabulating water uses. As an overview of water use within the service area, annual amounts are appropriate, although monthly/seasonal amounts would better facilitate water management planning. (Refer to Worksheets 43 and 44)

DWR encourages the agricultural water supplier to report current (e.g., 2012) and historic water use in order to better understand the potential effects of varying agricultural and climate conditions on water demands.

1. Agricultural Uses

DWR encourages the agricultural water supplier to report the amount of water used for agriculture including:

- **Delivered water.** The total of water delivered for agriculture purposes including all surface water, groundwater, recycled water, and other water from the agricultural water supplier (refer to Worksheet 43 with information from Worksheet 20)
- **Agricultural water use.** How much is actually used for agricultural uses including: (refer to Worksheet 44 with information from Worksheets 9 and 21)
    - Crop consumptive use of water
    - Amount of water used for leaching, if known
    - Amount of water used for other cultural practices (e.g., seedbed preparation, climate control), if known

For estimating agricultural use, you may wish to combine crops grown on less than five percent of the total irrigated acreage. To combine crops, determine an average crop evapotranspiration factor (ET_{crop}), leaching, and cultural requirement for this group of small acreage crops. The ET_{crop} for crops in your area and how to calculate crop water use can be found using the California Irrigation Management Information System (CIMIS) available at: www.cimis.water.ca.gov/cimis/info.jsp, or obtained from the local farm advisor. The University of California Cooperative Extension (UCCE) has published information on estimating water used for leaching and cultural practices (frost protection, pre-irrigation, and others).

2. Other Water Uses

DWR encourages the agricultural water supplier to report the amount of water delivered for other uses including: (refer to Worksheet 43 with information from Worksheet 20 Appendix A)

- An estimate of how much is lost through the delivery and storage system. This could include losses from both the agricultural supplier's and the customer's delivery and storage system through leaks, spills, and evaporation from reservoirs and unlined canals, and leaks from pipelines. Leaks and spills may be recoverable. Evaporation losses would be non-recoverable. (refer to Worksheet 44)
- Any water type water delivered for supporting environmental resources (refer to Worksheet 44 with information from Worksheet 24)
- Any water type water delivered for recreational purposes (refer to Worksheet 44 with information from Worksheet 25)Any water type delivered for municipal and industrial water use (refer to Worksheet 44 with information from Worksheet 26)
- Water exchanges or transfers out of the service area (refer to Worksheet 44 with information from Worksheet 28)
- Any water delivered for groundwater recharge/conjunctive use; including total recycled water, surface water, and other water supply water delivered for groundwater recharge (refer to Worksheet 44 with information from Worksheet 27)
- Other water used/delivered for any other purposes (e.g., road dust suppression) (refer to Worksheet 44 with information from Worksheet 29)

3. Recoverable and Irrecoverable Water Flows

Maximizing use of recoverable flows and minimizing irrecoverable flows may improve the agricultural water supplier's management of their water resources. As such, it is suggested that the agricultural water supplier include an estimate of the amount of recoverable and irrecoverable water flows:

- How much occurs as recoverable surface and subsurface flows, if available.
    - If drainage water can be reused, it would be 'recoverable' flow. Quantify the drain-water that leaves the district boundaries from surface ditches or through drainpipes. If no measurement data is available, this can be estimated based on the amount of water required for agricultural uses and conveyance and storage system losses (refer to Worksheet 44) subtracted from water delivered to agricultural customers. (refer to Worksheet 45)

      While an estimate is acceptable, if the estimate exceeds 100 AF per year per outflow location, installation of an outflow measurement device is encouraged. Reliable

outflow data is a best management practice and one of the key components of an accurate water inventory.[1]

- If deep percolation recharges a useable groundwater aquifer, this may be 'recoverable' flow. A rough estimate of the amount of water applied to the land that continues down past the root zone (deep percolation) to a useable aquifer would be beneficial.

- Estimate the quantity of additional irrecoverable flows. If surface or subsurface drainage water flows to a saline sink or perched water table, these flows would not be recoverable. (refer to Worksheet 46)

C. Overall Water Budget (Water Code §10826 (b)(7)(C))

The Water Code requires quantification of the overall water budget. Water supply and water use data, tabulated and/or quantified above, along with additional data can be used to help prepare a water budget summary that quantifies water uses, losses, supplies, and the overall budget. DWR encourages that this section report:

- The overall amount of surface water and groundwater supplies, effective precipitation, and transferred water supplies delivered into the service area. This would be a sum of all supplies delivered into the service area (surface water and groundwater) along with recycled water, private groundwater, effective precipitation and any other water supplies. (refer to Worksheet 47)
- How much water is used for all purposes, including amounts delivered for environmental uses and drainage from agricultural areas. (refer to Worksheet 48)
- How much water leaves the service area through surface drainage. (refer to Worksheet 45)

As an overview, annual amounts are appropriate, although monthly/seasonal amounts would better facilitate the water management planning process and may be more appropriate to use in calculating annual amounts. Agricultural water suppliers are encouraged to provide details on method used to determine/estimate quantities.

It is suggested that quantification for individual water supply source(s) also be included in the analysis, where applicable, in order to maximize utilization of the results for water management planning (e.g., identifying critical supply component(s), where efficiency can be improved to maximize available water, where conservation is necessary to maximize utilization, and others).

[1] U.S. Bureau of Reclamation. 2011. Water Management Planner Developed to meet the 2011 Standard Criteria for Agricultural and Urban Water Management Plan. p 5-6. Prepared December 2011. Available at: http://www.usbr.gov/mp/watershare/documents/Water_mgmt/index.html

D. Water Supply Reliability (Water Code §10826 (b)(8))

Water supply reliability is an important component of any water management planning process. Several factors can affect the reliability of any water resource supply. In accordance with Water Code **§10826 (b)(8)**, water supply reliability must be described in the AWMP. However, as with many components of the AWMP, details of the description are at the discretion of the agricultural water supplier.

DWR encourages the agricultural water supplier to include a discussion on need for firmness of supply based upon factors of importance to the water supplier and the potential for failure. Details on potential climate change effects are addressed under a separate section.

It is suggested that critical needs (e.g., economically valuable crop types with highly sensitive irrigation requirements, environmental uses, and others) be identified, along with the associated water supply constraints. Additionally, the inclusion of a description(s) of the following factors that may affect water supply reliability in the AWMP is encouraged:

- Conveyance infrastructure reliability (such as infrastructure age, ability to withstand catastrophic events, leaking distribution systems, susceptibility to catastrophic flood and other events, and others)
- Water storage reliability (this could include land subsidence and groundwater aquifer volume reductions, susceptibility to catastrophic events, or other factors)
- Contracted water reliability (such as SWP, CVWP-1, wholesaler water, other contracts or trades)
- Natural reliability (such as hydrologic and climate uniformity)
- Land use alterations (these could affect the water demands, water supply sources, groundwater recharge locations, and other conditions)
- Pertinent regulations

It is suggested that the agricultural water supplier also identify which mechanisms are in place, or planned, that would enhance supply reliability and include a discussion of water supply reliability under potential drought conditions.

3.6 Climate Change

The Water Code requires that the AWMP: *"Include an analysis, based upon available information, of the effect of climate change on future water supplies"* (Water Code **§10826 (c)**)

Potential climate change could affect agricultural water suppliers within the planning horizon of the AWMP. This section should include an analysis of the effects of climate change on water supply

availability. While this is a required element of the AWMP, the manner in which the climate change analysis is conducted is at the discretion of the agricultural water supplier. Refer to Appendix B.5: Guidance on Climate Change for details on what factors may be considered in the analysis and discussion. (See Section VI of the AWMP Template).

3.7 Water Use Efficiency Information

Water Code **§10826 (e)** requires that certain water use efficiency information be included in the AWMP per **§10608.48**. Sections **10608.48 (a)** through **10608.48(f)** are related to the EWMPs of the AWMP. Sections **10608.48 (a)** to **10608.48 (c)** require implementation of EWMPs. Section **10608.48 (d)** requires a report of which EWMPs have been implemented, an estimate of efficiency improvements, and documentation that non-implemented EWMPs were either not locally cost-effective or technically feasible. Section **10608.48 (e)** specifies how to report the information.

Implementation of critical EWMPs (Water Code §**10608.48 (b)**) are required of all agricultural water suppliers. Other EWMPs (Conditional) listed in Water Code **§10608.48 (c)** are required only if they are locally cost-effective and technically feasible. This section lists the AWMP reporting requirements and EWMPs implementation requirements. DWR also encourages the agricultural water supplier to report on how implementation of EWMPs may have affected or are anticipated to affect operations. See Section VII of the AWMP Template.

A. EWMP Implementation and Reporting

The Water Code requires that the AWMP:

> *"...a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report , and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination."* (Water Code §**10608.48 (d)**).

As such, the AWMP includes:

- A list of implemented and planned-to-be-implemented EWMPs (refer to Table VII.A.1 of the AWMP Template)
- An estimate of the water use efficiency improvements since the previous report and estimated to occur in five and ten years. For an initial 2012 AWMP, it is likely there is no previous report to compare improvements. As such, it is suggested that improvements be

estimated for EWMPs since implementation and submittal of the 2012 AWMP. Water use efficiency improvements can be quantitative or descriptive, depending upon the nature of the EWMP and information available to the agricultural water supplier. Additionally, estimating water use efficiency may not be practical or possible for individual EWMPs. In such cases, an overall estimate for multiple EWMPs is advised. (refer to Table VII.A.2 of the AWMP Template)

Although the Water Code requires the agricultural water supplier to report which EWMP's have and are planned to be implemented, inclusion in the AWMP of a plan, schedule, finance plan, and budget to implement EWMPs (Water Code §**10608.48 (b) and (c)**) that have not yet been implemented is suggested because this information is required for obtaining any State loans or grants after July 2013. (Refer to Table VII.A.3)

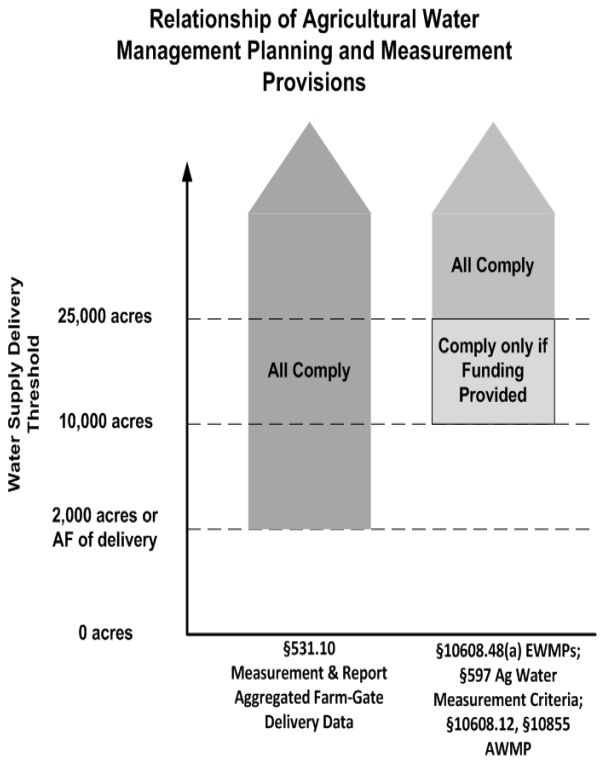
For those agricultural water suppliers with at least 10,000 and less than 25,000 irrigated acres, implementation of the Agricultural Water Measurement Regulation for measuring water deliveries is only required if sufficient funding has been provided specifically for that purpose (CCR §597.1 (e)). For agricultural water suppliers without the funding and meeting this size criteria, implementation of water measurement is still required, however, water measurements do not have to be conducted in accordance with CCR **§597 et seq.**

1. Critical EMWPs

The critical EWMPs must be implemented by the agricultural water supplier (Water Code §**10608.48(b)**). These include:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.



Furthermore, it is required by the CCR for water suppliers as defined in the CCR **§597 et seq.** to measure water with devices that comply with the accuracy standards of the Agricultural Water Measurement Regulation.

Water suppliers are encouraged to report the total number of farm-gates in the service area, the number of farm-gates complying with the CCR at the farm-gate, number of laterals, and number of laterals complying with the CCR accuracy standards. They should also include the number of each type planned for future water use

measurement, if applicable.

If the water supplier is not measuring water at the farm-gate, (i.e., measuring water use at the lateral) the water supplier must provide specific documentation in the AWMP as required by CCR and outlined in Chapter 6 (Appendix B.8 contains the relevant regulation).

It is also required that the AWMP include a description of how compliance with the pricing structure EWMP was implemented or planned for implementation if water measurements cannot be conducted at the farm-gate.

The documentation required by CCR, as described in Chapter 6, may be included in Section VIII of the AWMP.

1999 AWMC-MOU members can include documentation required by CCR in their water management plans (refer to Chapter 4). Federal water suppliers subject to CVPIA and RRA water management/conservation plans can submit Agricultural Water Measurement Regulation information required in the AWMP as an attachment to their water management/conservation plan (refer to Chapter 5).

2. Conditional EWMPs

As noted above, if certain EWMPs are not locally cost-effective or technically feasible they would not have to be implemented. However, if these EWMPs are locally cost-effective and technically feasible, they must be implemented by agriculture water suppliers providing water to at least 25,000 irrigated acres and water suppliers providing water to 10,000 to 25,000 irrigated acres if funding is provided (Water Code **§10608.48 (c)**). Additionally the EWMPs that are implemented or plan to be implemented should be reported in the AWMP.

(1) *"Facilitation of alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including problem drainage"* (Water Code **§10608.48 (c)(1)**).

(2) *"Facilitation of use of available recycled water that otherwise would not be used beneficially, meets health and safety criteria, and does not harm crops or soils. The use of recycled urban wastewater can be an important element in overall water management"* **(§10608.48 (c)(2))**.

For an example of recycled water use in agriculture, refer to California Farm Water Success Stories under the Reports and Research Publications at: http://www.pacinst.org/

(3) ***"****Facilitate the financing of capital improvements for on-farm irrigation systems"* **(§10608.48 (c)(3))**.

(4) *"Implement an incentive pricing structure that promotes one or more of the following goals"* **(§10608.48 (c)(4))**:

A. "*More efficient water use at the farm level such that it reduces waste*" **(§10608.48 (c)(4)(A))**.

B. *"Conjunctive use of groundwater"* **(§10608.48 (c)(4)(B))**.

Explanation: In dry years the water suppliers may encourage, through higher prices for surface water, pumping more groundwater and leaving surface water for environmental uses.

C. *"Appropriate increase of groundwater recharge"* **(§10608.48 (c)(4)(C))**.

Explanation: In wet years pricing may be used to encourage greater use of surface water to facilitate recharge. For examples, see: interactive case studies database at http://agwaterstewards.org/

D. *"Reduction in problem drainage"* **(§10608.48 (c)(4)(D))**.

For an example, see Red Rock Ranch in: interactive case studies database at http://agwaterstewards.org/

E. *"Improved management of environmental resources"* **(§10608.48 (c)(4)(E))**.

F. *"Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions"* **(§10608.48 (c)(4)(F))**.

(5) *"Expand line or pipe distribution systems, construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage"* **(§10608.48 (c)(5))**.

Explanation: Lining or piping the distribution system could increase distribution system flexibility and capacity and decrease maintenance and seepage. Seepage and evaporation losses in earthen canals and laterals can be minimized by replacement with pipelines or lining with bentonite clay, pour-in-place concrete or plastics/textile membranes. To reduce on-farm seepage losses, districts may wish to consider helping growers to line their ditches or install pipelines.

(6) *"Increase flexibility in water ordering by, and delivered to, water customers within operational limits"* **(§10608.48 (c)(6))**.

(7) *"Construct and operate supplier spill and tail-water systems"* **(§10608.48 (c)(7))**.

Explanation: This may increase efficiency or, in some cases, reduce losses of water from operational spills. In some areas, interception and recovery of farm tail-water may be advantageous. Consideration must be given to the impacts of such activities on water quality, crop yields, soil salinity and other conditions, third parties, and the environment.

(8) *"Increase planned conjunctive use of surface water and groundwater with the supplier service area"* **(§10608.48 (c)(8))**.

(9) *"Automate canal control devices"* **(§10608.48 (c)(9))**.

Explanation: This may increase flexibility in water deliveries and increase the water supplier's control over its water supplies, thereby providing the opportunity to improve the efficiency of water use.

(10) *"Facilitate or promote customer pump testing and evaluation"* **(§10608.48 (c)(10))**.

(11) *"Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports"* **(§10608.48 (c)(11))**.

(12) *"Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following"* **(§10608.48 (c)(12))**:

A. *"On-farm irrigation and drainage system evaluations"* **(§10608.48 (c)(12)(A))**.

DWR conducts an eco/mobile lab program that evaluates the performance of irrigation systems. The laboratories measure water application rates and system distribution uniformity and give recommendations for irrigation system improvement, if necessary: http://www.water.ca.gov/wateruseefficiency/irrigation/

B. *"Normal year and real-time irrigation scheduling and crop evapotranspiration information"* **(§10608.48 (c)(12)(B))**.

An important source of ET data for California is the California Irrigation Management Information System (CIMIS). CIMIS is a network of over 140 automated weather stations scattered throughout California that provide ETo and weather data to the public free of charge: http://www.cimis.water.ca.gov/cimis/welcome.jsp

C. *"Surface water, groundwater, and drainage water quantity and quality data"* **(§10608.48 (c)(12)(C))**.

D. *"Agricultural water management educational programs and materials for farmers, staff, and the public"* **(§10608.48 (c)(12)(D))**.

These could include such items as: soil moisture and salinity monitoring, in-school awareness programs, budgeting software, efficient irrigation techniques, crop water

budget and other approaches, program delivery via workshops, seminars, newsletters, field days and demonstration, and others.

(13) *"Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional change to allow more flexible water deliveries and storage."* **(§10608.48 (c)(13))**.

(14) *"Evaluate and improve the efficiencies of the supplier's pumps."* **(§10608.48 (c)(14))**.

B. Documentation for Non-Implemented EWMPs

For Conditional EWMPs, the EWMP reporting in the AWMP includes documentation of the agricultural water supplier's determination that a conditional EWMP is not locally cost-effective or technically feasible, if applicable (Water Code §**10608.48 (d)**). Locally cost effective is defined in the Water Code as:

> " *"Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure."* (Water Code §**10608.12 (k)**)

Refer to the **Economic Analysis** section of Exhibit E of the 1999 AWMC MOU for a net benefit analysis approach that can be used to assess local cost-effectiveness for the conditional EWMPs. Exhibit E of the 1999 AWMC MOU is available under the Administrative Documents at: http://www.agwatercouncil.org/. Alternatively, the agricultural water supplier uses other documented and referenced approaches to determine local cost-effectiveness.

The determination of technical infeasibility would depend upon the nature of the EWMP being implemented. For instance, if there are no customers within the service area who operate their own groundwater pumps, or if customers are highly resistant to allowing pump testing and evaluation, implementation of EWMP number 10, *"Facilitate or promote customer pump testing and evaluation"* may not be possible. Documentation of this may require surveys, consultation with customers, and other processes to identify non-feasibility. If available groundwater resources are minimal or under adjudication, EWMP number 8, *"Increase planned conjunctive use of surface water and groundwater with the supplier service area",* may not be possible. Documentation of technical non-feasibility may include such items as records of basin adjudication and identification of the agricultural water supplier and customers groundwater allotments; groundwater management plan basin descriptions, basin boundaries, other basin characteristics; any other documentation of the lack of groundwater resources or ability to extract groundwater. Alternatively, the canal and

The USBR's Mid Pacific Region 2011 Standard Criteria, Addendum A, provides a suggested detailed analysis method for assessing local cost-effectiveness and certain aspects of technical non-feasibility: http://www.usbr.gov/

distribution system may not be amendable to EWMP number 9, *"Automate canal control devices*", and an engineering report may be prepared to document the inability to implement this EWMP.

Table VII.B can be used to document non-implemented EWMP rationale. DWR encourages the agricultural supplier to provide a cost-benefit analysis, engineering determination, or other documentation supporting the omission of a conditional EWMP as not locally cost effective or technically not feasible in the AWMP. Additional documentation (e.g., detailed cost-benefit analysis, engineering calculations, and others) can be attached in Section VIII of AWMP (see Section 3.8 for details).

The Water Code requires that critical EWMPs be implemented. Conditional EWMPs may be omitted if they are not locally cost-effective or technically feasible; however, documentation for this determination is required in the AWMP for compliance with the Water Code (refer to Table VII.B of the AWMP Template).

3.8 Supporting Documentation

Supporting documentation as required by CCR 23 **§597 et seq.** for compliance with the Agricultural Water Measurement Regulation, described in Chapter 5, can be included in Section VIII of AWMP. Section VIII can also include any other documentation and information you wish to include to support your descriptions and analyses in AWMP Sections I through VII. DWR encourages the agricultural water supplier to include in this section:

Agricultural Water Measurement Regulation Supporting Documentation (as applicable):

(Refer to Section 3.6 for details on this documentation)

A. Legal Certification and Apportionment Required for Water Measurement

B. Engineer Certification and Apportionment Required for Water Measurement

C. Description of Water Measurement Best Professional Practices

D. Documentation of Water Measurement Conversion to Volume

E. Device Corrective Action Plan Required for Water Measurement

Other Documents (as applicable):

1. Coordination documentation, as applicable
    - Notification of AWMP Preparation
    - Comments received on the AWMP

- Copies of outreach materials
- Hearing/equivalent process notifications
- Newspaper ads
- Copies of AWMP notice of availability
- Others, as applicable

2. Resolution of Plan Adoption
3. Water supplier maps
4. Water Supplier Opperating Rules and Regulations
5. Additional Agricultural Water Measurement Regulation compliance documentation
6. Water Shortage Allocation Policy
7. Water Shortage Contingency Plan
8. Agricultural supplier groundwater wells and recharge locations maps
9. Groundwater Management Plan
10. Detailed water quality information
11. Cost-benefit analysis/ technical infeasibility documentation
12. Additional information/data as applicable.
13. Agricultural Water Supplier's Completed Checklist

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4 1999 AWMC MOU Process Guidance

Agricultural water suppliers that submit AWMPs in compliance with the 1999 AWMC-MOU may submit those AWMPs with the additional documentation identified in Sections 4.1, 4.2, and 4.3, to be compliant with Water Code Part 2.55, Chapter 4 (Section 10608.48), Part 2.8, Article 1 (notification of preparation), Article 2 (Content of Plans) and Article 3 (public participation and submittal sections) and by CCR 597.4(e) (requirements for Agricultural Water Measurement Regulation AWMP documentation).

4.1 AWMC Water Management Plan

The Water Code allows the members of the 1999 AWMC-MOU to submit the water management plan submitted to the AWMC to comply with Water Code **§10826** - Plan Content.

> *"Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826."* (Water Code **§10827**).

4.2 Additional Documentation Requirements

Additional information must be included in the water management plan for compliance with Water Code **§10827** and the Agricultural Water Measurement Regulation (as applicable in accordance with CCR **§597.4 (e)**). For 2012 plans, include or attach the following applicable documentation with the AWMC water management plan submitted to DWR. DWR encourages the use and submittal of the checklist (Section 2.1) along with all other documentation.

Refer to Chapter 6 for details on the Agricultural Water Measurement Regulation documentation and reporting requirements. This documentation must also be reviewed and approved by the water supplier.

The following documentation should be submitted to DWR:

A. EWMPs Documentation

1. Report on EWMPs

A report on the EWMPs implemented, EWMPs planned for implementation, an estimate of efficiency improvements since the last report, and estimated efficiency improvements expected in the next five and ten years must be included (Water Code **§10608.48(d)**).

For an initial 2012 AWMP, it is likely there is no previous report to compare improvements. As such, it is suggested that improvements be estimated for EWMPs since submittal of any previous AWMP. Water use efficiency improvements can be quantitative or descriptive, depending upon the nature of the EWMP and information available to the agricultural water supplier. Additionally, estimating water use efficiency may not be practical or possible for individual EWMPs. In such cases, an estimate for groups of EWMPs is advised. (Refer to Tables 4.1 and 4.2)

Use the following tables to report EWMPs information (Water Code **§10608.48(e)**):

Table 4.1 Report of EWMPs Implemented/Planned
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

EWMP No.*	Description of EWMP Implemented	Description of EWMPs Planned
Critical EWMPs		
1		
2		
Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		

Table 4.1 Report of EWMPs Implemented/Planned
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

EWMP No.*	Description of EWMP Implemented	Description of EWMPs Planned
14		
Other Optional EWMPs (as applicable)		

Notes:
*EWMP numbers correspond to Water Code §10608.48(c)

Table 4.2 Report of EWMPs Efficiency Improvements
(Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

Corresponding EWMP No.(s)*	Estimate of Water Use Efficiency Improvements That Occurred Since Last Report *(Quantitative or Descriptive)*	Estimated Water Use Efficiency Improvements 5-10 years in future *(Quantitative or Descriptive)*

Notes:
*EWMP numbers correspond to Water Code §10608.48(c).

2. Non-Implemented EWMPs

If any conditional EWMP is determined to be not locally cost-effective or technically feasible, documentation for that determination is to be included (Water Code **§10608.48(d)**). Use the following table to document non-implemented EWMPs (Water Code **§10608.48(e)**):

Table 4.3 Non-Implemented EWMP Documentation
(Water Code §10608.48(d), §10608.48 (e))

EWMP #	Description	*(check one or both)*		Justification/Documentation*
		Technically Infeasible	Not Locally Cost-Effective	

Notes:
*Justification/Documentation can include summary cost-benefit analysis or engineering determination with reference to the specific study/agency/engineer responsible for making that determination.

B. Agricultural Water Measurement Regulation Documentation (as applicable)

Attachment A: Legal Certification and Apportionment Required for Water Measurement

Attachment B: Engineer Certification and Apportionment Required for Water Measurement

Attachment C: Description of Water Measurement Best Professional Practices

Attachment D: Documentation of Water Measurement Conversion to Volume

Attachment E: Device Corrective Action Plan Required for Water Measurement

C. Documentation Required for Loan and Grant Eligibility only

If the water supplier has not implemented all of the Water Code **§10608.48** EWMPs, the water supplier must submit to DWR for approval, a schedule, finance plan, and budget for implementation of remaining EWMPs to be eligible for State loans and grants. Therefore, DWR encourages the agricultural water supplier to also complete Table 4.4.

Table 4.4 Schedule to Implement EWMPs (Water Code §10608.56 (d))*				
EWMP	**Implementation Schedule**	**Finance Plan**	**Budget Allotment**	**1999 AWMC MOU Demand Measures**
Critical				
1 – Water Measurement				C-1
2 - Volume-Based Pricing				No equivalent
Conditional				
1 – Alternate Land Use				B-1
2 – Recycled Water Use				B-2
3 – On-Farm Irrigation Capital Improvements				B-3
4 – Incentive Pricing Structure				C-2
5 – Infrastructure Improvements				B-5
6 – Order/Delivery Flexibility				B-6
7 – Supplier Spill and Tailwater Systems				B-7
8 – Conjunctive Use				B-8
9 – Automated Canal Controls				B-9
10 – Customer Pump Test/Eval.				No equivalent
11 – Water Conservation Coordinator				A-2
12 – Water Management Services to Customers				A-3
13 – Identify Institutional Changes				A-5
14 – Supplier Pump Improved Efficiency				A-6
Other EWMPs:				

Table 4.4 Schedule to Implement EWMPs (Water Code §10608.56 (d))*				
EWMP	**Implementation Schedule**	**Finance Plan**	**Budget Allotment**	**1999 AWMC MOU Demand Measures**
1999 AWMC MOU A-4: Improve communication and cooperation among water suppliers, users, and other agencies.				
1999 AWMC MOU B-4: Facilitate voluntary water transfers.				
Grand Total all EWMPs				
* This information is necessary for grant and loan eligibility. Note: There is no equivalent AWMP Critical EWMP #2 or Conditional EWMP #10				

4.3 Additional Documentation for Notification, Public Participation, Adoption, and Submittal Requirements

An AWMC member must prepare a plan in accordance with Water Code Part 2.8, Article 1 and Article 3 regarding notification, public participation, adoption, and submittal (refer to Section 3.1 for details).

A. Notification of AWMP Preparation

Notify each city or county that receives water from you that you will be preparing a plan or considering amendments to or changes to the plan.

> *"(a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.*
>
> *(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)."* (Water Code **§10821**).

DWR encourages the use of Worksheet 1 to provide information showing compliance with notification requirements.

B. Public Participation

Prior to adopting the plan, make the plan available for public inspection and hold a public hearing on the plan in accordance with Government Code Section 6066 (public suppliers) or equivalent process (private suppliers).

> *"Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing."* (Water Code **§10841**)

Refer to Section 3.1.B.2 for details on the public hearing process. DWR encourages the use of Worksheet 1 to provide information showing compliance with public participation requirements.

C. AWMP Adoption, Submittal, and Availability

Specific requirements for plan adoption and submittal are contained in the Water Code. DWR encourages the use of Worksheet 1 to provide information showing compliance with plan adoption, submittal, and availability requirements.

1. AWMP Adoption

> *"After the public hearing, the plan shall be adopted as prepared or as modified during or after the hearing."* (Water Code **§10841**)
>
> *"Amendments to, or changes in the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)."* (Water Code **§10820(b)**)

The agricultural water supplier is encouraged to include a copy of the Resolution of Plan Adoption to show compliance with plan adoption requirements.

2. AWMP Submittal

Within 30 days of adoption, the agricultural water supplier must submit copies of the water management plan, amendments, or changes to the water management plan (including the addition of required attachments/additions identified in Section 4.2, above) to the following entities (Water Code **§10843(a)**and **§10843(b)**):

> *"The DWR.*
>
> *Any city, county, or city and county within which the agricultural water supplier provides water supplies.*
>
> *Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.*
>
> *Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.*
>
> *Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.*
>
> *The California State Library.*
>
> *Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies."*

Refer to Section 1.6 of this Guidebook for details on submittal of the water management plan and documentation to DWR and the California State Library.

3. AWMP Availability

Within 30 days after plan adoption by the agricultural water supplier's governing entity, the water management plan must be made available for public review on the agricultural water supplier's website or an electronic copy submitted to DWR if the supplier does not have an internet website (Water Code **§10844**). Electronic copies sent to the DWR should preferably be in Adobe™ pdf or MS-Word™ format.

> *" (a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.*
>
> *(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format.*

The department shall make the plan available for public review on the department's Internet Web site." (Water Code **§10844**)

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5 USBR CVPIA/RRA Process Guidance

Agricultural water suppliers that submit AWMPs in compliance with water management/conservation plan to USBR may submit those AWMPs (see section 5.1) with the additional documentation identified here (see sections 5.2 and 5.3). Additional documentation includes Agricultural Water Measurement Regulation AWMP documentation required by CCR 597.4(e) identified in Section 5.2 below. To be compliant with Water Code Part 2.8, Article 1 (notification of preparation) and Article 3 (public participation and submittal sections), the water supplier should comply with requirements identified in section 5.3 below. To the extent federal review process includes the requirements specified in Part 2.8 Article 1 and Article 3, the AWMPs meet the requirements of the Water Code Part 2.8.

For existing plans, those adopted by the water supplier and accepted as adequate by the USBR by December 30, 2012 and no earlier than January 1, 2009, submission of those plans, along with the Agricultural Water Measurement Regulation documentation identified in section 5.2, would be sufficient to satisfy the requirements of the Water Code Part 2.8 for a 2012 AWMP.

5.1 USBR- CVPIA/RRA Water Management/ Conservation Plans That Are Accepted as Adequate

The Water Code **§10828** allows agricultural water suppliers subject to the USBR CVPIA/RRA water management/ conservation plan process to submit those plans for compliance with Water Code **§10826** provided that: 1) the water management/conservation plan has been adopted by the agricultural water supplier and submitted to the U.S. Bureau of Reclamation (USBR) within the previous four years, and 2) the USBR has accepted the water management/ conservation plan adequate. DWR accepts CVPIA/RRA Water management/conservation plans that have been accepted as adequate by the USBR within the previous four years but no earlier than January 1, 2009 for 2012 AWMP. These agricultural water suppliers must also submit additional documentation to DWR for compliance with the Agricultural Water Measurement Regulations as identified in Section 5.2.

> *"(a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:*

(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.

(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.

*(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation." (*Water Code **§10828**)

5.2 Additional Documentation Requirements

Additional information must be included in the water management/conservation plan submitted to DWR for compliance with the Agricultural Water Measurement Regulations (**CCR §597.4 (e)**). For 2012 and later Plans, submit to DWR the following documentation as an attachment with the USBR-accepted water management/conservation plan. Refer to Chapter 6 for details regarding the Agricultural Water Measurement Regulation reporting and documentation requirements. This documentation must also be approved by the water supplier. DWR encourages the use and submittal of the checklist (Section 2.1) along with all other documentation.

A. Agricultural Water Measurement Regulation Documentation (as applicable)

Attachment A: Legal Certification and Apportionment Required for Water Measurement
Attachment B: Engineer Certification and Apportionment Required for Water Measurement
Attachment C: Description of Water Measurement Best Professional Practices
Attachment D: Documentation of Water Measurement Conversion to Volume
Attachment E: Device Corrective Action Plan Required for Water Measurement

B. Documentation Required for Loan and Grant Eligibility only

If the water supplier has not implemented all of the Water Code **§10608.48** EWMPs, the water supplier must submit to DWR for approval, a schedule, financing plan, and budget for implementation of remaining EWMPs for loan and grant eligibility.

Therefore, it is suggested that this documentation be included as an attachment to the water management/conservation plan.

Table 5.1 Schedule to Implement EWMPs (Water Code §10608.56 (d))				
EWMP	**Implementation Schedule**	**Finance Plan**	**Budget Allotment**	**USBR BMPs**
Critical				
1 – Water Measurement				Critical 1
2 - Volume-Based Pricing				Critical 4
Conditional				
1 – Alternate Land Use				Exemptible 1
2 – Recycled Water Use				Exemptible 2
3 – On-Farm Irrigation Capital Improvements				Exemptible 3
4 – Incentive Pricing Structure				Exemptible 4
5 – Infrastructure Improvements				Exemptible 5a Exemptible 5b
6 – Order/Delivery Flexibility				Exemptible 6
7 – Supplier Spill and Tailwater Systems				Exemptible 7
8 – Conjunctive Use				Exemptible 9
9 – Automated Canal Controls				Exemptible 10
10 – Customer Pump Test/Eval.				Exemptible 11
11 – Water Conservation Coordinator				Critical 2
12 – Water Management Services to Customers				Critical 3
13 – Identify Institutional Changes				No equivalent
14 – Supplier Pump Improved Efficiency				Critical 5
Grand Total all EWMPs				
Note: There is no equivalent USBR Conditional EWMP #13 or #14				

5.3 Additional Documentation for Notification, Public Participation, Adoption, and Submittal Requirements

All agricultural water suppliers required to prepare new agricultural water management/conservation plans must prepare and complete their plan in accordance with Water Code Part 2.8, Article 1 and Article 3 requirements for notification, public participation, adoption, and submittal (refer to Section 3.1 for details). The federal review process may incorporate many requirements specified in Part 2.8, Articles 1 and 3; as such the federal process may meet the requirements of Part 2.8, otherwise, the agricultural water supplier would have to complete those requirements in Part 2.8, Articles 1 and 3 that are not already a part of the federal review process. Part 2.8 requirements are discussed below.

A. Notification of AWMP Preparation

Notify each city or county that receives water from you that you will be preparing a plan or considering amendments to or changes to the plan:

> *"(a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.*
>
> *(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)."* (Water Code **§10821**).

DWR encourages the use of Worksheet 1 to provide information showing compliance with notification requirements.

B. Public Participation

Prior to adopting the plan, make the plan available for public inspection and hold a public hearing on the plan in accordance with Government Code Section 6066 (public suppliers) or equivalent process (private suppliers):

> *"Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of*

hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing." (Water Code **§10841**)

Refer to Section 3.1.B.2 for details on the public hearing process. DWR encourages the use of Worksheet 1 to provide information showing compliance with public participation requirements.

C. AWMP Adoption, Submittal, and Availability

Specific requirements for plan adoption and submittal are contained in the Water Code. DWR encourages the use of Worksheet 1 to provide information showing compliance with plan adoption, submittal, and availability requirements.

1. AWMP Adoption

"After the public hearing, the plan shall be adopted as prepared or as modified during or after the hearing." (Water Code **§10841**)

"Amendments to, or changes in the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)." (Water Code **§10820(b)**)

The agricultural water supplier is encouraged to include a copy of the Resolution of Plan Adoption to show compliance with plan adoption requirements.

2. AWMP Submittal

Within 30 days of adoption, the agricultural water supplier must submit copies of the water management plan, amendments, or changes to the water management plan (including the required attachments/additions identified in Section 5.2, above) to the following entities (Water Code **§10843(a)**and **§10843(b)**):

"The DWR.

Any city, county, or city and county within which the agricultural water supplier provides water supplies.

Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

The California State Library.

Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies."

Refer to Section 1.6 of this Guidebook for details on submittal of the water management to DWR and the California State Library.

3. AWMP Availability

Within 30 days after plan adoption by the agricultural water supplier's governing entity, the water management plan must be made available for public review on the agricultural water supplier's website or an electronic copy submitted to DWR if the supplier does not have an internet website (Water Code **§10844**). Electronic copies sent to the DWR should preferably be in Adobe™ pdf or MS-Word™ format.

" (a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site." (Water Code **§10844**)

6 Water Measurement Documentation

The Agricultural Water Measurement Regulation requires that water measurements be conducted at the Delivery Point or Farm-gate of a single customer and that measurement devices are certified as accurate through field-testing, laboratory/engineer certification, or inspection. There are specific requirements for water measurement and reporting in the AWMP that are identified in **CCR §597.3(b)(2)**, **§597.4(b)(2)** and **§597.4 (e)**. This chapter describes the pertinent Agricultural Water Measurement Regulation documentation that must be included in the AWMP, if applicable. The pertinent text of this regulation is included in Appendix B.8.

All documentation needed for water measurement compliance may be included in Section VIII of the AWMP or included as attachments submitted with 1999 AWMC-MOU water management plans or CVPIA/RRA water management/conservation plans to DWR.

If the agricultural water supplier cannot measure water deliveries at the Delivery Point or Farm-gate of a single customer, they may be able to measure deliveries at an upstream location, provided certain criteria are met and that this is documented in the AWMP. The criteria for allowing upstream measurements are specified in **CCR §597.3(b)(1)**. The criteria for measurement device accuracy and certification are specified in **CCR §597.3(a)**, **§597.4(a)**, and **§597.4(b)**.

The following information is required in the AWMP to document that this criterion was satisfied, if applicable:

A. Legal Certification and Apportionment Required for Water Measurement – Lack of Legal Access to Farm-gate

If a water supplier cannot measure water at the farm-gate because of lack of legal access needed to install, measure, maintain, operate, and monitor a measurement device (**CCR §597.3(b(1)(A)**), the following must be included in the AWMP or as Attachment A with the 1999 AWMC-MOU or CVPIA/RRA plans:

1. Certification for lack of legal access by the water supplier legal counsel (**CCR §597.3(b)(2)(A)**)
2. Documentation on apportionment of volume of water delivered to customers (**CCR §597.3(b)(2)(C)**).

Under **CCR §597.4.b(2)(C)**, if water measurements cannot be conducted at the Delivery Point or Farm-gate of a single customer, all of the following criteria about how the agricultural water supplier apportions the volume of water delivered to individual downstream customers must be documented in the AWMP:

a. How differences in water use among individual customers is accounted for based on (but not limited to):

- Duration of water delivery
- Annual customer water use patterns
- Irrigated acreage
- Crops planted, and
- On-farm irrigation system

b. That this delivery apportioning is sufficient for establishing a pricing structure based at least in part on the volume delivered, and

c. That it was approved by the agricultural water supplier's governing board or body.

B. Engineer Certification and Apportionment Required for Water Measurement – Technically Infeasible

If a water supplier does not measure water at the Farm-gate but instead measures water at the lateral (upstream of multiple customers) because flow or water level fluctuations or other conditions prevent the ability to accurately measure at the Farm-gate, the water supplier must provide the following in the AWMP or as Attachment B with the 1999 AWMC-MOU or CVPIA/RRA plans:

1. Engineer determination that accuracy standards of **CCR §597.3(a)** cannot be met at the farm-gate (**CCR §597.3(b)(1)(B)** and **§597.3(b)(2)(B)**),

2. Documentation on apportionment of volume of water delivered to customers as described above (Guidebook section 6.A.2) (**CCR §597.3(b)(2)(C)**).

C. Description of Water Measurement Best Professional Practices

All water suppliers required to implement agricultural water measurement in accordance with **CCR §597** must include a description of Best Professional Practices about, but not limited to: (**CCR §597.4(e)(2)**)

- The collection of water measurement data
- Frequency of measurements
- Method for determining irrigated acres
- Quality control and quality assurance procedures.

Include this description in the AWMP or as Attachment C with the 1999 AWMC-MOU or USBR plans submitted to DWR.

D. Documentation of Water Measurement Conversion to Volume

If water measurement device(s) are not measuring water volume, the water supplier is required to implement agricultural water measurement in accordance with **CCR §597** must provide documentation on how measurements are converted to volume (**CCR §597.4(b)(2)(e)**). Specific flow-rate, velocity, and water elevation measurement conversions are identified in **CCR §597.4(b)(2)(e(3)**). Include this description in the AWMP or as Attachment D with the 1999 AWMC-MOU or USBR plans submitted to DWR.

E. Device Corrective Action Plan Required for Water Measurement

All existing water measurement devices must measure water delivered at the Delivery Point or Farm-gate of a single customer with the following accuracy: (**CCR §597.3(a)**)

- Existing devices with an accuracy of + 12% by volume
- New or replacement devices with a laboratory certified accuracy of 5% by volume or field-certified accuracy of 10% by volume

CCR §597.4(a) describes the initial certification of device accuracy protocols and **CCR §597.4(b)** describes the field-testing and field-inspection of existing devices protocols. Field-testing must be conducted as a statistically random representative sample of devices. Field inspections and analysis must be completed for every measurement device. In both cases, only trained and qualified individuals can perform these assessments and they must be approved by an engineer.

If field testing or inspection shows that a measurement device does not meet the accuracy criteria, it must be repaired and brought into compliance or replaced with a measurement device meeting the accuracy criteria above. If this cannot be accomplished by submittal of the 2012 plans, a corrective action plan is required to bring devices into compliance by 2015 (**CCR §597.4 (b)(2)** and **§597.4 (e)**. Agricultural Water Measurement Regulation requires that the corrective action plan be included in the 2012 Plan submittal to DWR and must include a schedule, budget, and finance plan for taking corrective action (**CCR §597.4 (e)(4)**). Include this description in the AWMP or as Attachment E with the 1999 AWMC-MOU or USBR plans submitted to DWR.

Table 6.1 Water Measurement Documentation Information:

Information that may be submitted to DWR in the AWMP or as an attachment to an 1999 AWMC-MOU water management plan or with a USBR-accepted water management/conservation plan to satisfy water measurement requirements.

Subject	State Regulation (CCR)	Information that may be submitted
Requirements for Measuring at Upstream of Multiple Customers	***Section 597.3(b)*** – allows installing measurement device upstream of multiple customers if certain conditions are met.	If water measurement device is installed upstream of multiple farm-gates, provide information on lack of legal access or conditions as described in Sections 597.3(b)(1)(A), 597.3(b)(1)(B), and 597.3(b)(2) of regulation
Performance Requirements	***Section 597.4(d)*** – 1. Devices shall be correctly installed, maintained, operated, inspected, and monitored 2. Devices no longer meeting the accuracy requirements shall be repaired or replaced	Provide a description of device performance.
Reporting Requirements	***Section 597.4(e)(1)-(4)*** - Document compliance w/ 597.3 (b) Description of best professional practices used Protocols used to convert non-volume readings Schedule, budget and finance plan for taking corrective actions	Provide documents for Section 597.4(e)(1)-(4).
Requirements for bringing existing devices under compliance	***Section 597.4(e)(4)*** – Schedule, budget and finance plan	If applicable, provide information for Section 597.4(e)(4).

Appendix A: Worksheets

This section provides worksheets that can be populated with data and information by the agricultural water supplier and used in the AWMP to complete required elements.

Use of Worksheets and provision of information to be included in these worksheets is encouraged by the DWR. However, worksheet use, format, and information do not constitute a requirement for the AWMP or compliance with the Water Code. These worksheets are provided to facilitate the preparation of AWMPs, to provide examples of what information may be submitted and how, and to provide a consistent format for information submittal and organization. Worksheets can also be modified as applicable.

Worksheets are organized corresponding to the AWMP Template outline in Section 2.2 and detailed guidance provided in Chapter 3.

Section I.B.

Worksheet 1. Summary of Coordination, Adoption, and Submittal Activities

Potential Interested Parties *[Provide names(s)]*	**Notified of AWMP Preparation**	**Requested Copy of Draft** ***(Optional)***	**Commented on Draft/Action Taken by Supplier** ***(Optional)***	**Notified of Public Meetings**	**Attended Public Meetings** ***(Optional)***	**Copy of Adopted AWMP/ Amendment Sent**
Local City(s)	[Insert Date]					[Insert Date]
Local County(s)	[Insert Date]					[Insert Date]
Groundwater Management Entity						[Insert Date]
Urban Water Supplier(s)						[Insert Date]
City or County Library						[Insert Date]
Local Agency Formation Commission						[Insert Date]
DWR						[Insert Date]
Local Newspaper/ Equivalent Process [*Identify which*]				[Insert Dates]		
Other Local government agency						
Other Special districts						
Regional agency						
Environmental citizen group						

Worksheet 1. Summary of Coordination, Adoption, and Submittal Activities						
Potential Interested Parties *[Provide names(s)]*	**Notified of AWMP Preparation**	**Requested Copy of Draft** ***(Optional)***	**Commented on Draft/Action Taken by Supplier** ***(Optional)***	**Notified of Public Meetings**	**Attended Public Meetings** ***(Optional)***	**Copy of Adopted AWMP/ Amendment Sent**
Land Use Agencies						
Business group						
Social citizen group						
Other State government agency						
Federal government agency						
Other [*Identify*]						
Website						[Insert Date Posted or Sent to DWR for Posting]
Note: Additional rows/columns can be added as applicable.						

Section II.A.1

Worksheet 2. Water Supplier History and Size	
Date of Formation	**Date:**
Source of Water	**Check applicable sources**
Local Surface Water	
Local Groundwater	
Wholesaler	
USBR	
SWP	
Service Area Gross Acreage	_____ **acres**
Service Area Irrigated Acreage	_____ **irrigated acres**
Note: Additional rows/columns can be added as applicable.	

Worksheet 3. Expected Changes to Service Area		
Change to Service Area [Delete non-applicable row(s)]	**Estimate of Magnitude**	**Effect on the Water Supplier**
Reduced Service Area Size	[Estimate reduced area]	
Increased Service Area Size	[Estimate increased area]	
New Governmental Entity	[Describe effect on service area]	
Other [Define/Identify]		
Note: Additional rows/columns can be added as applicable.		

Section II.A.2

Worksheet 4. Water Conveyance and Delivery System	
System Used	**Number of Miles**
Unlined Canal	
Lined Canal	
Pipelines	
Drains	
Note: Additional rows/columns can be added as applicable.	

Worksheet 5. Water Supplier Reservoirs	
Number	
Total Capacity	
Note: Additional rows/columns can be added as applicable.	

Worksheet 6. Tailwater/Spill Recovery System	
System	**Yes/No**
District Operated Tailwater/Spill Recovery	
Grower Operated Tailwater/Spill Recovery	
Note: Additional rows/columns can be added as applicable.	

Section II.A.3

Worksheet 7. Landscape Characteristics			
Topography Characteristic	**% of the District**	**Effect on Water Operations and Drainage**	
Soil Characteristic/ Classification	**% of the District**	**Percolation Rate (inches/hour)**	**Effect on Water Operations and Drainage**
Note: Additional rows/columns can be added as applicable.			

Section II.A.4

Worksheet 8. Summary Climate Characteristics	
Climate Characteristic	**Value**
Average Annual Precipitation (inches)	
Annual Minimum Precipitation (inches)	
Annual Maximum Precipitation (inches)	
Average Annual Minimum Temperature (^{o}F)	
Average Annual Maximum Temperature (^{o}F)	
Note: Additional rows/columns can be added as applicable.	

Worksheet 9. Detailed Climate Characteristics*				
Month/Time	**Average Precipitation, Inches**	**Average Reference Evapotranspiration (Et_o), Inches**	**Average Minimum Temperature, ^{o}F**	**Average Maximum Temperature, ^{o}F**
January				
February				
March				
April				

Worksheet 9. Detailed Climate Characteristics*				
Month/Time	**Average Precipitation, Inches**	**Average Reference Evapotranspiration (Et_o), Inches**	**Average Minimum Temperature, ^oF**	**Average Maximum Temperature, ^oF**
May				
June				
July				
August				
September				
October				
November				
December				
Wet Season**				
Dry Season**				
Extreme Conditions (if applicable) [Insert type, e.g., 100-year event]				
Other [Identify]				

Notes:
*Please provide as much information as is available. If data is not available, delete column/row or ignore cell(s). Alternatively, additional rows/columns can be added as applicable.
**Wet season is typically October through April or November through May, depending upon location. Identify months used in the table Notes.

Section II.B.1

Worksheet 10. Supplier Delivery System		
Type	**Check if Used**	**Percent of System Supplied**
On Demand		
Modified Demand		
Rotation		
Other		
Note: Additional rows/columns can be added as applicable.		

Worksheet 11. Water Allocation Policy					
	(Check if applicable)			Allocation	
Basis of Water Allocation	**Flow**	**Volume**	**Seasonal Allocations**	**Normal Year**	**Percent of Water Deliveries (%)**
Area within the service area					
Amount of land owned					
Riparian rights					
Other					
Note: Additional rows/columns can be added as applicable.					

Worksheet 12. Actual Lead Times	
Operations	**Hours/Days**
Water orders	
Water shut-off	
Note: Additional rows/columns can be added as applicable.	

Section II.B.2

Worksheet 13. Water Delivery Measurements			
Measurement Device	**Frequency of Calibration (Months)**	**Frequency of Maintenance (Months)**	**Estimated Level of Accuracy (%)**
Orifices (meter gates)			
Propeller Meters			
Weirs			
Flumes			
Verturi Meters			
Pump, Run Time			
Pump, KWH			
Other			
Note: Additional rows/columns can be added as applicable.			

Section II.B.3

Worksheet 14. Water Rate Basis			
Water Charge Basis	**Check if Used**	**Percent of Water Deliveries (%)**	**Description**
Volume of Water Delivered			
Rate and Duration of Water Delivered			
Acre			
Crop			
Land Assessment			
Other			
Note: Additional rows/columns can be added as applicable.			

Worksheet 15. Rate Structure		
Type of Billing	**Check if Used**	**Description**
Declining		
Uniform		
Increasing Block Rate		
Other		
Note: Additional rows/columns can be added as applicable.		

Worksheet 16. Frequency of Billing	
Frequency	**Check if Used**
Weekly	
Biweekly	
Monthly	
Bimonthly	
Semiannually	
Annually	
Note: Additional rows/columns can be added as applicable.	

Section II.B.4

Worksheet 17. Decreased Water Supplies Allocations	
Allocation Method	**Check if used**
By crop	
First come first served	
Area in district	
Other	
No specific policy	
Note: Additional rows/columns can be added as applicable.	

Worksheet 18. Enforcement Methods of Allocation Policies	
Enforcement Method	**Check if used**
Fines	
Water Shut-off	
Other	
No specific policy	
Note: Additional rows/columns can be added as applicable.	

Section II.C.

Worksheet 19. Representative Year	
	Description
Representative year(s) based upon	[include year(s)]
First month of representative year	
Last month of representative year	
Note: Additional rows/columns can be added as applicable.	

Section III.A.

Worksheet 20. Annual Agricultural Water Use (AF)						
Source	**Representative Year**	**Planning Cycle**				
		1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
Agricultural Water Supplier Delivered						
Surface Water						
Groundwater						
Other (define)						
Other Water Supplies Used						
Surface Water						
Groundwater						
Other (define)						
Notes: Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.						

Worksheet 21. Agricultural Crop Data For [Insert year*]								
Crop	**Total Acreage**	**Irrigation Method**	**Planting Month**	**Harvest Month**	**ET crop (AF/Ac)**	**Cultural Practices (AF/Ac)**	**Leaching Requirement (AF/Ac)**	**Total Crop Water Needs (AF)**
TOTAL								
Notes: *Complete a separated table for the Representative Year or each year in the Planning Cycle where data is available. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.								

Worksheet 22. Irrigated Acres						
	Rep. Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Total Irrigated Acres						

Notes:
Insert data if available. If data is not available, columns or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

Worksheet 23. Multiple Crop Information						
Cropping System	Representative Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Single-Cropped Acres						
Inter-cropping						
Double Cropping						

Note:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.B.

Worksheet 24. Environmental Water Uses (AF)						
Environmental Resources	Representative Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
From Supplier						
Vernal pools						
Streams						
Lakes or reservoirs						
Riparian Vegetation						
Other [Identify]						

Worksheet 24. Environmental Water Uses (AF)						
Environmental Resources	**Representative Year**	**Planning Cycle**				
		1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
TOTAL						
All Sources						
Vernal pools						
Streams						
Lakes or reservoirs						
Riparian Vegetation						
Other [Identify]						
TOTAL						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.C.

Worksheet 25. Recreational Water Uses (AF)						
Recreational Facility	**Representative Year**	**Planning Cycle**				
		1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
TOTAL						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.D.

Worksheet 26. Municipal/Industrial Water Uses (AF)						
Municipal/ Industrial Entity	Representative Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Municipal Entity						
Industrial Entity						
TOTAL						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.E.

Worksheet 27. Groundwater Recharge Water Uses (AF)						
Location/ Groundwater Basin	Method of Recharge	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Commitments/Dedicated						
Voluntary/Opportunistic						
TOTAL						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.F.

Worksheet 28. Transfers and Exchanges Water Uses			
From What Agency	**To What Agency**	**Type (Ag to M&I, M&I to Ag, or Ag to Ag)**	**Volume (AF)**
Representative Year			
Planning Cycle Year 1			
Planning Cycle Year 2			
Planning Cycle Year 3			
Planning Cycle Year 4			
Planning Cycle Year 5			

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, rows can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section III.G.

Worksheet 29. Other Water Uses (AF)						
Water Use	**Representative Year**	**Planning Cycle**				
		1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
[Identify Use]						
[Identify Use]						
[Identify Use]						
[Identify Use]						
TOTAL						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section IV.A.1.

Worksheet 30. Surface Water Supplies (AF)								
Source	**Diversion Restriction**	**Rep. Year**	**Planning Cycle**					**Anticipated Changes**
			1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**	
Pre-1914 water rights								
CVP class I water contract								
SWP water contract								
Other imported water surface water								
Local surface water [Identify]								
Upslope drain water								
Transfers /Exchanges								
TOTAL								

Notes:
Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

Worksheet 31. Restrictions on Water Sources			
Source	**Restrictions***	**Name of Agency Imposing Restrictions**	**Operational Constraints**

Notes:
*Examples of possible restrictions are amount of water supplied by DWR, USBR; environmental laws.

Section IV.A.2.

Worksheet 32. Groundwater Basins			
Basin Name	**Size (Sq. Mi.)**	**Usable Capacity (AF)**	**Safe Yield (AF/Yr)**

Note: Additional rows/columns can be added as applicable.

Worksheet 33. Groundwater Management Plan	
Written By	
Year	
Is Appendix Attached?	

Note: Additional rows/columns can be added as applicable.

Worksheet 34. Groundwater Supplies (AF)								
Groundwater Basin	Diversion Restriction	Rep. Year	Planning Cycle					Anticipated Changes
			1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]	
Water Supplier Direct Pumping								
Private Pumping								
Transfers /Exchanges								
TOTAL								

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

Section IV.A.3.

Worksheets 30 and 31

Section IV.A.4.

Worksheet 35. Drainage Discharge (AF)								
Surface/ Subsurface Drainage Path	Rep. Year	Planning Cycle					End Use	Inside/ Outside Service Area
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]		

Note:
Insert data if available. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable. A minimum of one year should be reported.

Section IV.B.1. - IV.B.3.

Worksheet 36. [Insert Source*] Water Supply Quality**							
Parameter	Units	Rep. Year	Planning Cycle				
			1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
TDS							
Se							
B							
Mo							
As							
Na							
Cl							
Pesticide							
Herbicide							
Fertilizer(NO_3)							
Other [Identify]							
Other [Identify]							

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank or alternatively they can be deleted. Alternatively, additional rows/columns can be added as applicable.

* Identify supply source, for example, surface water, groundwater, or other water. If 'Other' water source is used, specify what the 'Other' water source is.

** Report average value and the range of values in parenthesis. For example, 10 (2 – 14), where 10 units is the yearly average and measurements ranged from 2 to 14 units. Units are specified in the 'Units' column.

Section IV.B.4.

Worksheet 37. Drainage Reuse Effects						
Analyte	Detected (Check)	Drainage Reuse Limitations (*Check*)				
		Increased Leaching	Blending Supplies	Restricted Area of Use	Restricted Crops	Other
TDS						
Se						
B						
Mo						
As						
Na						
Cl						

Worksheet 37. Drainage Reuse Effects						
Analyte	**Detected (Check)**	**Drainage Reuse Limitations (*Check*)**				
		Increased Leaching	**Blending Supplies**	**Restricted Area of Use**	**Restricted Crops**	**Other**
Pesticide						
Herbicide						
Fertilizer(NO_3)						
Other						
Note: Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.						

Section IV.C.1.

Worksheet 38. Water Quality Monitoring Practices			
Water Source	**Monitoring Location**	**Measurement/ Monitoring Method or Practice**	**Frequency**
Note: Additional rows/columns can be added as applicable.			

Section IV.C.2.

Worksheet 39. Water Quality Monitoring Programs for Surface/Sub-Surface Drainage		
Monitoring Program	**Analyses Performed**	**Frequency of Analysis**
Note: Additional rows/columns can be added as applicable.		

Section V.A.1.

Worksheet 40. Surface and Other Water Supplies For [Insert year*] (AF)												
Source	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Dec**	**Total**
CVP Class 1 Contracts												
Pre-1914 Rights												
SWP												
Local Surface Water												
Upslope Drain Water												
Transfers & Exchanges												
Recycled Water												
Other [Identify]												
Total												

Notes:
*Identify whether this data is for the Representative Year or 1st, 2nd, 3rd, 4th, or 5th Plan Cycle Year. Prepare one table, as applicable, for each year with data. Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Worksheet 41. Groundwater Supplies Summary For [Insert Year*] (AF)							
	Pumped by the Water Supplier			**Pumped within Service Area by Customers**			
Month	**Basin 1**	**Basin 2**	**Basin 3**	**Basin 1**	**Basin 2**	**Basin 3**	**TOTAL**
January							
February							
March							
April							
May							
June							
July							
August							
September							

Worksheet 41. Groundwater Supplies Summary For [Insert Year*] (AF)							
Month	Pumped by the Water Supplier			Pumped within Service Area by Customers			TOTAL
	Basin 1	Basin 2	Basin 3	Basin 1	Basin 2	Basin 3	
October							
November							
December							
TOTAL							

Notes:
*Identify whether this data is for the Representative Year or 1st, 2nd, 3rd, 4th, or 5th Plan Cycle Year. Prepare one table, as applicable, for each year with data. Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Section V.A.2.

Worksheet 42. Effective Precipitation Summary (AF)							
Month	Representative Year	Planning Cycle					Average
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]	
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
TOTAL							

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Section V.B.

Worksheet 43. Applied Water (AF)						
	Rep. Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Applied Water* (from Worksheet 20)						
Note: * Water delivered to agricultural customers from Section III.						

Worksheet 44. Quantify Water Use (AF)						
		Planning Cycle				
Water Use	Rep. Year	1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Crop Water Use (from Worksheet 21)						
1 Crop Evapotranspiration						
2 Leaching						
3 Cultural practices						
Conveyance & Storage System						
4 Conveyance seepage						
5 Conveyance evaporation						
6 Conveyance operational spills						
7 Reservoir evaporation						
8 Reservoir seepage						
Environmental Use (Consumptive)						
9 Environmental use – wetlands (from Worksheet 24)						
10 Environmental use – Other (from Worksheet 24)						
11 Riparian vegetation (from Worksheet 24)						
12 Recreational use (from Worksheet 25)						
Municipal and Industrial						
13 Municipal (from Worksheet 26)						
14 Industrial (from Worksheet						

Worksheet 44. Quantify Water Use (AF)

		Planning Cycle				
Water Use	**Rep. Year**	**1st Year [Insert Year]**	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
26)						
Outside the District						
15 Transfers or Exchanges out of the service area (from Worksheet 28)						
Conjunctive Use						
16 Groundwater recharge (from Worksheet 27)						
Other (from Worksheet 29)						
Subtotal						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Worksheet 45. Quantify Water Leaving the District (AF)

	Rep. Year	Planning Cycle				
		1st Year [Insert Year]	**2nd Year [Insert Year]**	**3rd Year [Insert Year]**	**4th Year [Insert Year]**	**5th Year [Insert Year]**
1 Surface drain water leaving the service area						
2 Subsurface drain water leaving the service area						
Subtotal						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Worksheet 46. Irrecoverable Water Losses* (AF)						
	Rep. Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
Flows to saline sink						
Flows to perched water table						
Subtotal						

Notes:
*Insert data if available and describe how it was calculated. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

Section V.C.

Worksheet 47. Quantify Water Supplies (AF)						
Water Supplies	Rep. Year	Planning Cycle				
		1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
1 Surface Water* (summary total from Worksheet 40)						
2 Groundwater (summary total from Worksheet 41)						
3 Annual Effective Precipitation (summary total from Worksheet 42)						
4 Water purchases						
Subtotal						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

*Subtract water purchases if included in totals; water purchases will be included on line 4.

Worksheet 48. Budget Summary (AF)

	Water Accounting	Rep. Year	Planning Cycle				
			1st Year [Insert Year]	2nd Year [Insert Year]	3rd Year [Insert Year]	4th Year [Insert Year]	5th Year [Insert Year]
1	**Subtotal of Water Supplies (Worksheet 47)**						
2	**Subtotal of Water Uses (Worksheet 44)**						
3	**Drain Water Leaving Service Area (Worksheet 45)**						
	Excess Deep Percolation*						

Notes:
Insert data if available. A minimum of one year should be reported. If data is not available, columns, rows, or cells can be left blank. Alternatively, additional rows/columns can be added as applicable.

*Calculated from lines 2 and 3 subtracted from line 1

Worksheet Footnotes

WORKSHEET NO.	EXPLANATION
1	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 1 except that required items are highlighted, additional information is requested for some items, and additional optional items added.
2	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 2.
3	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 8 except that a column had been added to allow for reporting of the expected change in size/magnitude.
4	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 3.
5	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 4.
6	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 5.
7	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 9 and10 except that terrain/ topography effects on drainage conditions are also suggested
8	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 11 except that annual minimum and maximum monthly precipitation reporting is also requested.
9	This worksheet has no comparable 1999 AWMC MOU Agricultural Water Management Plan Worksheets table.
10	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 6.
11	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 12.
12	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 13.
13	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 14.
14	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 15 except that a description of the water charge basis is requested and that charges based on water quantity be identified as volume- or rate- based.
15	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 16.
16	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 17.
17	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 18.
18	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 19.
19	This worksheet is essentially the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 24 except actual year(s) used has to be reported.
20	This worksheet replaces 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 24 with additional columns for data from multiple years.
21	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 25.
22	This worksheet is essentially the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 26 with additional columns for data from multiple years.
23	This worksheet is essentially the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 27 with additional columns for data from multiple years.
24	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 28 except that the supplier volume of water used is separated from total uses.
25	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 29.

WORKSHEET NO.	EXPLANATION
26	This worksheet has no corresponding 1999 AWMC MOU Agricultural Water Management Plan Worksheets table.
27	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 30 except that the location of recharge is identified and the volume of water used that is dedicated for groundwater recharge is separated from voluntary/ opportunistic groundwater recharge
28	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 31.
29	This worksheet has no corresponding 1999 AWMC MOU Agricultural Water Management Plan Worksheets table.
30	This worksheet is essentially the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 20 except that local groundwater supply information is added.
31	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 7 except that a column has been added to identify the water source. Additional rows/columns can be added as applicable.
32	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 21.
33	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 22.
34	This worksheet has no corresponding 1999 AWMC MOU Agricultural Water Management Plan Worksheets table.
35	This worksheet is similar to the 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 32.
36	This worksheet is similar to the 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 34 except this is for source water quality.
37	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 34.
38	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 23 except that a column has been added to identify the water source.
39	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 33.
40	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 35.
41	This worksheet is the same as 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 36.
42	This worksheet has no corresponding 1999 AWMC MOU Agricultural Water Management Plan Worksheets table.
43	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 37 except that columns have been added for additional years.
44	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 38 except that columns have been added for additional years.
45	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 39 except that columns have been added for additional years.
46	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 40 except that columns have been added for additional years.
47	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 41 except that columns have been added for additional years.
48	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 42 except that columns have been added for additional years.
49	This worksheet is similar to 1999 AWMC MOU Agricultural Water Management Plan Worksheets Table 44 but re-orders EWMPs to correspond to the Water Code EWMPs and provides the corresponding the Water Code EWMP number and finance plan has been added.

Appendix B: Supporting Information

B.1 Frequently Asked Questions (FAQs)

Q1: Who has to submit an Agricultural Water Management Plan (AWMP)?

A1: The law specifies agricultural water suppliers that provide water to greater than 25,000 irrigated acres, excluding recycled water, shall be required to adopt and implement an AWMP and submit a plan to DWR.

Suppliers that provide less than 25,000 irrigated acres are not required to adopt and submit a plan unless sufficient funding has specifically been provided to that water supplier for these purposes.

Q2: What happens if an agricultural water supplier doesn't submit a plan?

A2: An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier adopts and implements an AWMP per Water Code **§10852**.

Q3: Why does DWR use the years 2012 and 2015 as two AWMP cycles since a cycle is 5 years?

A3: Agricultural Water Management Plans submittal years 2012 and 2015 are set by the Water Code legislation. After 2015, plans are to be submitted every 5 years.

Q4: Do Bureau of Reclamation contractor suppliers submit AWMPs to DWR?

A4: Agricultural water suppliers that are required to submit water conservation plans also known as water management plan every five years to the Bureau of Reclamation pursuant to the CVPIA or the RRA, or both, may submit those plans to DWR to satisfy the requirements to adopt an AWMP as required by the Water Code if the following apply:

- The agricultural water supplier has adopted and submitted the plan to the Bureau of Reclamation within the previous four years (Water Code **§10828(a)(1)**).
- The Bureau of Reclamation has accepted the plan as adequate (Water Code **§10828(a)(2)**).

Q5: Do Bureau of Reclamation contractor suppliers comply with the state's Agricultural Water Measurement Regulation?

A5: All agricultural water suppliers as described in the Agricultural Water Measurement Regulation are subject to the Regulation. Federal water suppliers that currently comply with USBR 2011 Criteria and measure water using devices that are maintained and calibrated to meet the federal standards would meet the accuracy standards of state regulation. Information submitted to DWR should include the following:

- If measurement is done at upstream of multiple customers farm-gates due to lack of legal access or water level or flow conditions, the supplier should provide needed information that includes a water supplier's legal counsel document for lack of legal access or documents for existence of fluctuating water flow conditions as described in CCR Section **597.3(b)** of the Agricultural Water Measurement Regulation.
- Water measurement conversion to volume.
- Performance information, including devices correctly installed, maintained, operated, inspected, and monitored.
- Description of best professional practices used; protocols used to convert non-volume readings; schedule, budget and finance plan for taking corrective actions.
- If existing devices are not in compliance with Reclamation, provide schedule, budget, and finance plan to replace the device with new devices by 2015.

Q6: Is there anything in the Water Conservation Act of 2009 which requires tiered water pricing for agricultural water suppliers?

A6: There is not any language in the Water Code regarding tiered pricing per se. However, see the following sections from the law regarding pricing structure:

Water Code §10608.48 states:

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

> *(2) Adopt a pricing structure for water customers based at least in part on quantity delivered, and…*

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:…

> *(4) Implement an incentive pricing structure that promotes one or more of the following goals:*
>
> *(A) More efficient water use at the farm level.*
>
> *(B) Conjunctive use of groundwater.*
>
> *(C) Appropriate increase of groundwater recharge.*
>
> *(D) Reduction in problem drainage.*

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions

Q7: Explain the condition of "sufficient funding provided to a water supplier" that would make the implementation of the requirements of the Water Code mandatory (e.g., adoption and submission to DWR of an AWMP).

A7: For suppliers providing water to 10,000 or more but less than 25,000 irrigated acres, funding from the State or other entities may be made available for implementing a specific requirement (e.g., preparation of AWMPs). When the funding is part of a grant program requiring local match, then any supplier receiving such funds and agreeing to providing match would be required under the term of the grant agreement to implement that requirement. In the event where full funding has been provided to a supplier to implement a specific SB X7-7 requirement, then the supplier would be required to implement that requirement. Funding may be from state or other entities including local.

Q8: When an agricultural water supplier recharges a groundwater basin for the purpose of providing irrigation water to customers who pump the water through private wells, how is the supplier's total irrigated acreage calculated for the purpose determining SB X7-7 applicability?

A8: When a supplier recharges a groundwater basin used by customers to pump water for irrigation, and there exists a customer – supplier relationship, then the total irrigated acres supplied from the pumped groundwater would count toward the supplier's total irrigated acreage.

Q9: The Water Code states that federal water suppliers' plans accepted by Reclamation can be submitted to satisfy the requirements of Section **10826** if they are submitted to Reclamation within the previous four years. Are federal plans accepted by Reclamation within the four years prior to the passage of SB X7-7 (November 10 2009) acceptable?

A9: No. Only federal plans accepted by Reclamation within the four years prior to the adoption due date of the agricultural water management plans are acceptable. For the first round of AWMPs due December 31, 2012, federal plans accepted by Reclamation on or after January 1, 2009 are acceptable. For the second round of AWMPs due December 31, 2015, federal plans accepted by Reclamation on or after January 1, 2012 are acceptable. For the third round of AWMPs due December 31, 2020, federal plans accepted by Reclamation on or after January 17, 2017 are acceptable.

Q10: We have 33,000 acres within the district, but we transfer 20,000 acre feet to a neighboring district. We only irrigate 9,000 acres within our district. Are we subject to SB X7-7 planning requirements?

A10: It depends on the total irrigated acres served by the water supplier's water. If agricultural water supplier A routinely transfers a portion of its water to agricultural water supplier B (receiving water supplier), supplier A is a wholesale water supplier and its irrigated acreage is determined by the irrigated area of its direct customers and the irrigated area of the receiving water supplier customers served by the transfer.

B.2 AWMP and Ag Water Measurement Compliance Flow Charts

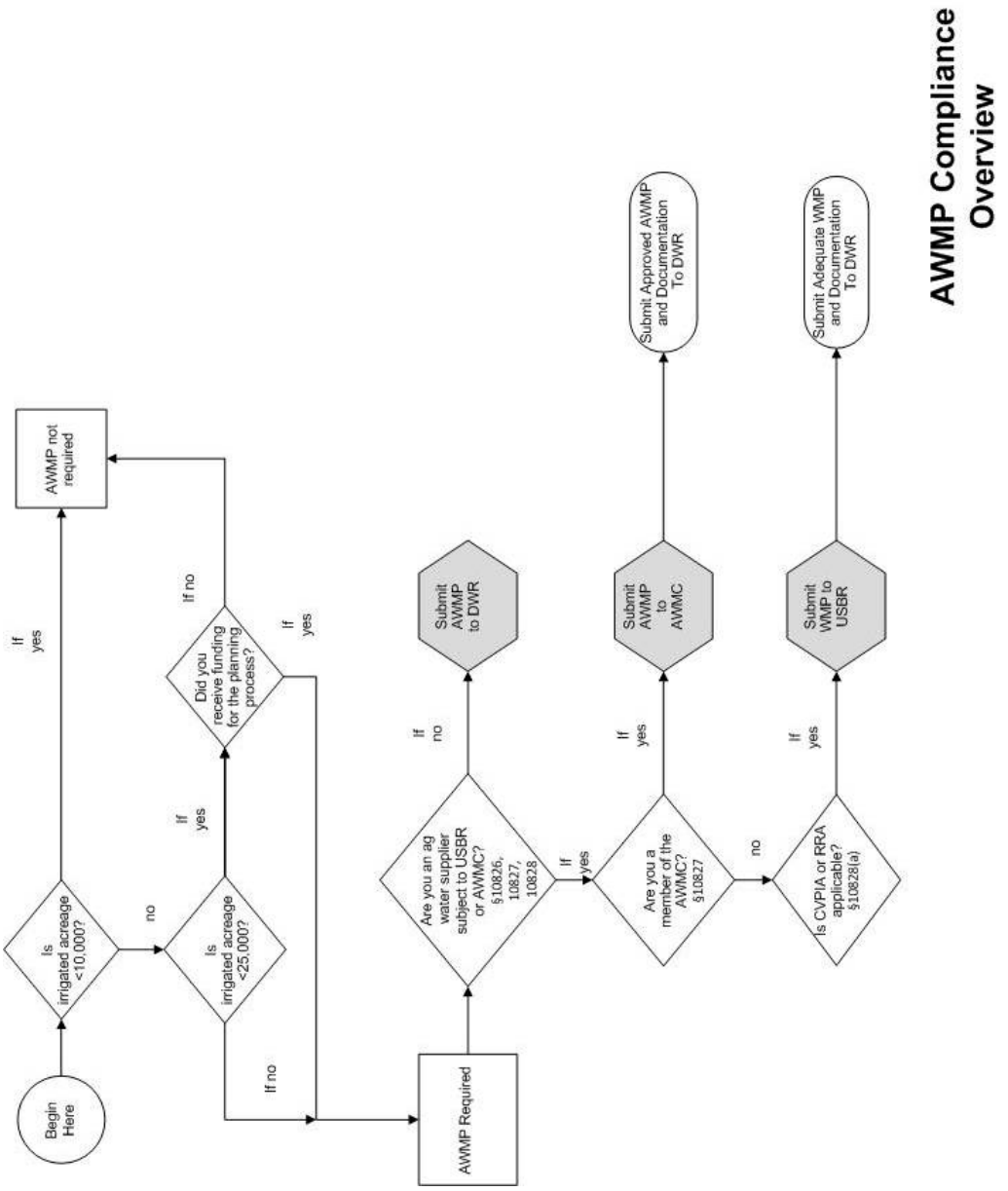

Figure 1 AWMP Compliance Overview

Figure 2 Agricultural Water Measurement Compliance Overview

B.3 Detailed Comparison of the Water Code, 1999 AWMC MOU and USBR CVPIA/RRA Processes

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
1	**Not Required (N/R)**	Step 1: Coordinate with other agencies and the public	**N/R**
2	**§10826**. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following: (a) Describe the agricultural water supplier and the service area, including all of the following:	Step 2: Describe the water supplier	**Section 1** Description of the District
3	(1) Size of the service area.	A. History and size	**Section 1A** History
4	(2) Location of the service area and its water management facilities	B. Location and facilities	**Section 1B** Location and facilities
5	(3) Terrain and soils	C. Terrain and soils	**Section 1C** Topography and Soils
6	(4) Climate	D. Climate	**Section 1D** Climate
7	**N/R**	**N/R**	**Section 1E** Natural and Cultural Resources
8	(5) Operating rules and regulations	E. Operating rules and regulations	**Section 1F** Operating Rules and Regulations
9	(6) Water delivery measurements or calculations	F. Water delivery measurement or calculations	**Section 1G** Water Measurement, Pricing and Billing
10	(7) Water rate schedules and billing	G. Water rate schedules and billing	**Section 1G** Water Measurement, Pricing and Billing
	(8) Water shortage allocation policies	H. Water shortage allocation policies	**Section 1H** Water Shortage Allocation Policies
12	(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:	Step 3: Inventory water resources	**Section 2** Inventory water resources
13	(1) Surface water supply	A. Surface water supply	**Section 2A** Surface Water Supply
14	(2) Groundwater supply	B. Groundwater supply	**Section 2B** Groundwater Supply
15	(3) Other water supplies	C. Other water supplies	**Section 2C** Other Water Supplies
16	(4) Source water quality monitoring practices	D. Source water quality monitoring practices	**Section 2D** Source Water Quality Monitoring Practices
17	(5) Water uses within the agricultural water supplier's service area, including all of the following:	E. Water uses within the water supplier's service area	**Section 2E** Water Uses with the District
18	(A) Agricultural	1. Agricultural	**Section 2E1** Agricultural
19	(B) Environmental	2. Environmental	**N/R**
20	(C) Recreational	3. Recreational	**N/R**
21	(D) Municipal and industrial	4. Municipal and industrial	**Section 2E2** Urban
22	(E) Groundwater recharge	5. Groundwater recharge	**Section 2E3** Groundwater Management Plan/Banking Programs
23	(F) Transfers and exchanges	6. Transfers and exchanges	**Section 2E4** Transfers, Exchanges, Rescheduling, Purchases, or Sales

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
24	(G) Other water uses	7. Other water uses	**Section 2E5** Other
25	(6) Drainage from the water supplier's service area	F. Drainage from the water supplier service area	**Section 2F** Outflow from the District
26	(7) Water accounting, including all of the following:	G. Water accounting	**Section 2G** Water Accounting
27	(A) Quantifying the water supplier's water supplies	1. Quantify water supplier's water supplies	**Section 2G1** Quantify Contractor's Water Supplies
28	(B) Tabulating water uses	2. Tabulate water uses	**Section 2G2** Quantify Water Used
29	(C) Overall water budget	3. Overall water budget	**Section 2G3** Overall Water Budget
30	(8) Water supply reliability	H. Supply reliability	**N/R**
31	(c) Include an analysis, based on available information, of the effect of climate change on future water supplies	**N/R**	**N/R**
32	(d) Describe previous water management activities	**N/R**	**N/R**
33	(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48	Step 5: Identify efficient water management practices	**Section 3A** Critical BMPs for Agricultural Contractors
34	**§10608.48**. (a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c). (b) Agricultural water suppliers shall implement all of the following critical efficient management practices:	Step 8: Implement justified efficient water management practices	**Section 3A** Critical BMPs for Agricultural Contractors
35	**Chapter 3, Article 1, §10820** (a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.	**Exhibit A, List A** 1. Prepare and adopt a Water Management Plan using as a guideline Exhibit B of this Memorandum of Understanding for Agricultural Water Suppliers	**Section 210 of the Reclamation Reform Act of 1982 (RRA); Central Valley Project Improvement Act of 1992 (Public Law 102-575)** Requires federal contractors to prepare and submit plans every 5 years
36	**§10608.48 (a)(1)** Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2)	**Exhibit A, List C** 1. Water measurement and water use report.	**Section 3A1** Water Measurement
37	(2) Adopt a pricing structure for water customers based at least in part on quantity delivered	2. Pricing or other incentives.	**Section 3A4** Pricing Structure
38	(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the	(see below)	**Section 3B** Exemptible BMPs for Agricultural Contractors

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
	measures are locally cost effective and technically feasible:		
39	(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage	**Exhibit A, List B** 1. Facilitate alternative land use	**Section 3B1** Facilitate Alternative Land Use
40	(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils	2. Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not cause harm to crops or soils.	**Section 3B2** Facilitate Use of Available Recycled Water that Otherwise Would Not be Used Beneficially, Meets all Health and Safety Criteria, and Does Not Cause Harm to Crops or Soils.
41	(3) Facilitate the financing of capital improvements for on-farm irrigation systems	3. Facilitate the financing of capital improvements for on-farm irrigation systems.	**Section 3B3** Facilitate the Financing of Capital Improvements for On-Farm Irrigation Systems.
42	**N/A**	4. Facilitate voluntary water transfers that do not unreasonably affect the water user, water supplier, the environment, or third parties.	**N/R**
43	(4) Implement an incentive pricing structure that promotes one or more of the following goals:	**Exhibit A, List C** 2. Pricing or other incentives.	**Section 3B4** Incentive Pricing
44	(A) More efficient water use at the farm level	b. A volumetric rate structure may be tiered, whereby the water supplier sets a higher price for that portion of water applied above crop evapotranspiration, leaching requirement, system evaporation, and other beneficial requirements.	**N/R**
45	(B) Conjunctive use of groundwater	c. A water supplier may implement a pricing arrangement or other financial incentives to improve the conjunctive use of surface and groundwater supplies.	**Section 3B9** Optimize Conjunctive Use
46	(C) Appropriate increase of groundwater recharge	(see above)	(see above)
47	(D) Reduction in problem drainage	**N/R**	**N/R**
48	(E) Improved management of environmental resources	**N/R**	**N/R**
49	(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions	**N/R**	**N/R**
50	(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage	**Exhibit A, List B** 5. Line pipe ditches and canals. (in part)	**N/R**

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
51	(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits	**Exhibit A, List B** 6. Increase flexibility in water ordering by, and delivery to, the water users within operational limits.	**Section 3B6** Increase Flexibility in Water Ordering By, and Delivery To, Water Users
52	(7) Construct and operate supplier spill and tailwater recovery systems	7. Construct and operate water supplier spill and tailwater recovery systems.	**Section 3B7** Construct and Operate Spill and Tailwater Recovery Systems
53	**N/R**	**N/R**	**Section 3B8** Plan to Measure Outflow
54	(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area	8. Optimize conjunctive use of surface and groundwater.	**Section 3B9** Optimize Conjunctive Use
55	(9) Automate canal control structures.	9. Automate canal structures.	**Section 3B10** Automate Distribution and/or Drainage System Structures
56	(10) Facilitate or promote customer pump testing and evaluation	**N/R**	**Section 3B11** Facilitate or Promote Water User Pump Testing and Evaluation
57	**N/R**	**N/R**	**Section 3B12** Mapping (GIS)
58	(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports	**Exhibit A, List A** 2. Designate a Water Conservation Coordinator	**Section 3A2** Designate the Water Conservation Coordinator
59	(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:	(see below)	**Section 3A3** Provide or Support the Availability of Water Management Services to Water Users
60	(A) On-farm irrigation and drainage system evaluations	**Exhibit A, List A** 3a. On-farm irrigation and drainage system evaluation	**Section 3A3a** On-farm evaluations
61	(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information	3b. Normal year and real-time irrigation scheduling and crop evapotranspiration information	**Section 3A3b** Normal year and real-time irrigation scheduling and crop ET information
62	(C) Surface water, groundwater, and drainage water quantity and quality data	3c. Surface water, groundwater, and drainage water quality data.	**Section 3A3c** Surface, ground, and drainage water quantity and quality data.
63	(D) Agricultural water management educational programs and materials for farmers, staff, and the public	3d. Educational programs and materials for famers, staff, and public	**Section 3A3d** Agricultural water management educational programs and material for farmers and staff, and the public.
64	**N/R**	4. Where appropriate, improve communication and cooperation among water suppliers, water users, and other agencies.	**N/R**
65	(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage	**Exhibit A, List A** 5. Evaluate the need, if any, for changes in policies of the institutions to which the water supplier is subject.	**Section 1I** Evaluate Polices of Regulatory Agencies Affecting the Contractor and Identify Policies that Inhibit Good Water Management

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
66	(14) Evaluate and improve the efficiencies of the supplier's pumps.	**Exhibit A, List A** 3e. Water user pump testing and evaluation. 6. Evaluate and improve efficiencies of water suppliers' pumps.	**Section 3A5** Evaluate and Improve Efficiencies of Contractor's Pumps
67	**N/R**	Step 6: Develop schedules, budgets, and projected results	**N/R**
68	**§10608(d)** Agricultural water suppliers shall include in the AWMPs a report on which EWMPs have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. Submit documentation if an EWMPs is not locally cost effective or technically feasible.	**Exhibit E** "Net Benefit Analysis for EWMPs by Agricultural Water Suppliers", for evaluating which of the EWMPs is appropriate for their service area.	**Section 3B Exemptible BMPs for Agricultural Contractors** Each contractor shall implement the following BMPs, unless the contractor has an approved exemption from Reclamation. The contractor is required to follow the exemption process (see Addendum A) to justify exemptions. Refer to Addendum B for example justifications for each exemptible BMP. Document the exemption in this section.
69	**§10608(e)** The data shall be reported using a standardized form developed pursuant to §10608.52	**N/R**	**N/R**
70	**§10841 (Plan Review)** Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to **Section 6066** of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing	Step 7: Review, evaluate, and adopt the water management plan	**USBR** releases the plans for public comment after they are received from the water supplier and deemed adequate.
71	**N/R**	Step 9: Monitor, evaluate, and update the water management plan	**N/R**
	§10608.48(g) on or before December 31, 2013, and December 31, 2016, and December 31, 2021,	**N/R**	**N/R –** No Congressional report required.

	Water Code	1999 AWMC-MOU	USBR CVPIA/RRA
72	DWR, in consultation with the Water Board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented, and an assessment how those measures have affected and will affect agricultural operations, and estimated water use efficiency improvements, if any. **§10845** DWR shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and one, a report summarizing the status of the plans adopted.		A **Ten-year** progress report was issued in 2004 for years 1993-2002, and covered all aspects of CVPIA.
73	**§10608.56** On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.	**N/R**	**Consequences of Non-Compliance (2011 Standard Criteria)** An adequate Plan must be in place before Reclamation will consider extending any discretionary benefits, such as financial and technical assistance. Consequences of noncompliance may include, but are not limited to ineligibility for any Reclamation grants.

B.4 Annual Aggregated Farm-Gate Delivery Report

The annual Agricultural Aggregated Farm-Gate Delivery Report to DWR is required under the AB 1404 (Water Code §531.10); however, it does not need to be included in the AWMP or alternate plans for compliance with Water Code agriculture management planning. It is due annually on July 31 of each year, beginning in 2013 and each year thereafter. The form can be found on DWR's web site at: http://www.water.ca.gov/wateruseefficiency/agricultural/farmgatedelivery.cfm

A. Guidance for Compliance with the Requirements of submitting Agricultural Aggregated Farm-Gate Delivery Report

1. Agricultural water suppliers (defined by Water Code **§10608.12(a)** as water suppliers providing supplies to at least 25,000 irrigated acres or at least 10,000 but less than 25,000 irrigated acres if funding is provided) are required to measure water delivery to its customers and send an annual report to DWR. The water suppliers use the Aggregated Farm-Gate Delivery Reporting Format for Article 2 (Rev. 6-20-2012) to submit data to DWR.

2. Water suppliers (as defined by AB 1404, in Water Code **§531.10**) that are serving less than 10,000 acres of agricultural land (or less than 25,000 acres if no funding is provided) and at least 2,000 acres of agricultural land (or at least 2,000 acre feet annually for agricultural purposes) are to measure water deliveries using best professional practices and report annually to DWR and use the same form. However, measurement is required only if it is locally cost effective.

B. Definitions of Terms (from AB 1404 and SB X7-7)

Agricultural Water Supplier:

For the purpose of AB1404 requirements, Water Code **§531.1** defines "agricultural water supplier" as *"a supplier either publicly or privately owned, supplying 2,000 acre-feet or more of surface water annually for agricultural purposes or serving 2,000 or more acres of agricultural land. An agricultural water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells water for ultimate resale to customers*" (Water Code **§531.b**)

For the purpose of SB X7-7 requirements (Article 2), Water Code **§10608.12(a)** defines "agricultural water supplier" as *"a water supplier, either publically or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right that distributes or sells water for ultimate resale to customers. "Agricultural water supplier*" does not include the department."

Aggregated Farm-Gate Delivery Data:

""Aggregated farm-gate delivery data" means information reflecting the total volume of water an agricultural water supplier provides to its customers and is calculated by totaling its deliveries to individual customers" (Water Code **§531.a**)

Farm-gate:
""Farm-gate" means the point at which water is delivered from the agricultural water supplier's distribution system to each of its customers" (Water Code **§531.f**).

Best Professional Practices:
AB 1404: *""Best professional practices" means practices attaining and maintaining accuracy of measurement and reporting devices and methods"* (Water Code **§531.d**). This definition applies to agricultural water suppliers <10,000 acres (and less than 25,000 acres if no funding is made available to the water supplier).

CCR **§597**: *""Best professional practices" means practices attaining to and maintaining accuracy of measurement and reporting devices and methods described in this article, such as operation and maintenance procedures and practices recommended by measurement device manufacturers, designers, and industry professionals"* (CCR 23 **§597.2(a)(4)**). This definition applies to agricultural water suppliers ≥10,000 acres.

Not Locally Cost-Effective:
"The present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure" (Water Code **§10631.5 (a)(4)(B)**).

C. What Must an Agricultural Water Supplier do to be Compliant with Water Measurement Reporting?

1. For those agricultural water suppliers providing farm-gate delivery data to DWR,

   a) Provide DWR with aggregated monthly or bimonthly farm-gate deliveries on an annual basis, and

   b) Provide DWR with information on their farm-gate measurement program or practices to document that:

      i. They are using "Best Professional Practices" if they are suppliers providing water to less than 25,000 irrigated acres, excluding acres that receive only recycled water, and if locally cost-effective.

      ii. They measure water delivered to customers in accordance with Agricultural Water Measurement Regulation if they are suppliers providing water to at least 25,000 irrigated acres, excluding acres that receive only recycled water.

      iii. They measure water delivered to customers in accordance with Agricultural Water Measurement Regulation when funding is provided to them for the purpose, if they are suppliers providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, excluding acres that receive only recycled water.

2. For those agricultural water suppliers greater than 2,000 acres not providing farm-gate delivery data to DWR, they must provide DWR with information that documents that the implementation of a program or practices to measure farm-gate deliveries using Best Professional Practices is not locally cost effective. Reporting is mandatory (local cost effectiveness does not apply) for those suppliers that provide water to at least 25,000 irrigated acres, excluding acres that receive only recycled water, and for those providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, when funding is provided for the purpose of measurement.

D. Reporting Required Information

Agricultural water suppliers must submit the required information listed below to DWR using the *Aggregated Farm-Gate Delivery Reporting Format for Article 2 (Rev. 6-20-2012)* (see Figure 3 in Appendix B.8)

- Report basic information about the water supplier.
- Report the water supplier representative's contact information.
- Report of the monthly or bimonthly aggregated farm-gate deliveries and to identify the Best Professional Practices used
- Provide DWR with comments and explanations if the implementation of a farm-gate measurement program or practices using Best Professional Practices is not locally cost effective.

E. Information of "Best Professional Practices" and "Not Locally Cost Effective" for purpose of water suppliers <10,000 irrigated acres to comply with AB 1404

AB1404 defines "Best Professional Practices" as *"Practices attaining and maintaining accuracy of measurement and reporting devices and methods*". It does not specify any method of measurement. The Water Code defines "Not Locally Cost Effective" as *"The present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure"*. The Water Code does not require DWR to develop any methods, or standards on "Best Professional Practices" or "Not Locally Cost Effective", nor does it to require water suppliers to use any specific water measurement methods. The Water Code does not require DWR to evaluate or review any information provided by agricultural water suppliers.

As a technical assistance to water suppliers, DWR is providing different sources of information on "Best Professional Practices" and "Not Locally Cost Effective" to water suppliers.

The final report, "Independent Panel on Appropriate Measurement of Agricultural Water Use" (September 2003) contains information pertaining to farm-gate deliveries that could help a local water supplier in gaining more understanding about measurement programs and practices and their accuracies. It also includes some information related to costs and benefits of measurement programs

and practices that might be helpful. The report can be found in the Calfed Library under Water Use Efficiency at: http://calwater.ca.gov/.

The Agricultural Water Management Council's website contains information on measurement and has links to other sites with additional information on water measurement. The website is located at: http://www.agwatercouncil.org./

F. Submitting the Annual Report

The completed form must be submitted by mail or e-mail to DWR each year beginning July 31, 2013. The completed forms should be sent to the following address:

Department of Water Resources
Water Use and Efficiency Branch
Agricultural Water Use Efficiency Unit
P.O. Box 942836
Sacramento, CA 94236
Attention: Fethi BenJemaa

The completed electronic form may be submitted by e-mail to Fethi BenJemaa at

jemaa@water.ca.gov

Any future submittal updates may be found on DWR's website at:
http://www.water.ca.gov/wateruseefficiency/

B.5 Guidance on Climate Change for Agricultural Water Management Plans

This section is provided as an example for compliance with Water Code **§10826 (c)**. The potential effects of climate change would not only impact local areas but would also result in statewide changes that could affect the supplier and its water supplies.

Snowpack in the Sierra Nevada provides 65 percent of California's water supply. Estimates indicate that by 2050 the Sierra snowpack will be significantly reduced. Much of the precipitation is expected to fall as rain instead of snow during winter and cannot be stored in our current water system for later use. The climate is also expected to become more variable and extreme, bringing more droughts and floods. Agricultural water suppliers will need to be prepared to adapt to greater variability in weather patterns.

A. Potential Climate Change Effects

Within the next 20 years, DWR expects that water supplies, water demand, sea level, and the occurrence and increased severity of floods will be affected by climate change. Some of these potential changes are presented below.

Water suppliers should consider the following climate change effects, many of which are already documented in California:

1. **Water Demand** — Shorter winters, more hot days and nights, and a longer irrigation season will increase water demand.

2. **Water Supply and Quality** — Reduced snowpack, shifting spring runoff to earlier in the year has the potential to impact water supply.

3. **Sea Level Rise** — The Delta will be at greater risk to increased salinity due to sea level rise. It is expected that sea level will continue to rise due to the warming of the oceans. This will result in near-shore ocean changes such as stronger storm surges, more forceful wave energy, and more extreme tides. This will also affect levee stability in low-lying areas and increase flooding.

4. **Disaster** — Disasters are expected to become more frequent as climate change brings increased climate variability, resulting in more extreme droughts and floods.

A thorough discussion in the AWMP is encouraged by agricultural water suppliers to address their potential actions and responses to these changes as part of addressing the effects of climate changes on future water supplies.

B. Specific points to consider

1. Irrigation demand is likely to increase as temperatures rise and rainfall becomes more variable.

2. Permanent crops such as fruit and nut trees will be adversely affected by climate change and are not easily shifted to alternative crops. Areas with significant water demand from these crops may have reduced flexibility for adapting to changing climatic conditions.

3. Flooding risk is expected to increase as a result of more severe rainfall patterns and warmer winter rains. This could affect water supply and conveyance.

4. Snowpack is expected to significantly diminish as the climate warms. Diminished snowfall in the mountains and earlier runoff will result in reduced water supply availability for agricultural water suppliers that rely on this source of water. A water supply source that depends upon snow-melt and barely meets water demands under existing conditions is more likely to be vulnerable to climate change.

5. The Sacramento-San Joaquin River Delta is vulnerable to impacts of climate change, most notably sea level rise. Higher sea levels will make it more difficult to export water from the Delta with the existing infrastructure and may result in reduced water deliveries over time.

See "*Climate Change Handbook for Regional Water Planning"* (2011) for additional details: http://www.water.ca.gov/climatechange/CCHandbook.cfm

B.6 Legislative History, Current Legislation and Regulations, and Related Programs

A. Legislative History

1. AB 3616 Agricultural Efficient Water Management Act of 1990

This legislation required DWR to establish an advisory committee consisting of state, federal, and local agencies; agricultural communities, California university system; environmental and public interest groups; and other interested parties to develop a list of efficient water management practices for agricultural water suppliers. In addition, then California Governor Pete Wilson directed the AB 3616 Advisory Committee to develop a Memorandum of Understanding between the agricultural and environmental communities and other interested parties to further address efficient use of agricultural water in California.

2. Water Code §531.1 - AB 1404 (2007) Water Measurement Information

The AB 1404 requires agricultural water suppliers to submit to DWR an annual report that includes measured aggregated farm-gate deliveries data on a monthly or bi-monthly basis. The submittals are also to include farm-gate measurement programs or practices to document implementation of "Best Professional Practices" (BMPs). If water measurement is not locally cost-effective, then the agricultural water supplier may provide supporting documentation to DWR.

B. Current Legislation and Regulations

1. SB X7-7 Water Conservation (Steinberg, Statute of 2009)

2. Agricultural Water Measurement
(Title 23 California Code of Regulations, §597 *et seq., 2011*)

C. Related Programs

1. California Water Plan Update
http://www.waterplan.water.ca.gov/cwpu2013/index.cfm

2. California Agricultural Water Management Council Efficient Water Management Practices (EWMPs)

3. Integrated Regional Water Management Plans
http://www.water.ca.gov/irwm/index.cfm

4. Bureau of Reclamation Water management/conservation plans (CVPIA).
For the most current Standard Criteria, see:
http://www.usbr.gov/mp/watershare/documents/Water_mgmt/index.html

5. **Bureau of Reclamation RRA Plans**
   http://www.usbr.gov/rra/

6. **Bureau of Reclamation 2008 Conservation Efficiency Standards (PL 102-575)**
   http://www.usbr.gov/mp/cvpia/title_34/public_law_complete.html

B.7 Text of the Water Code Pertaining to Agricultural Water Suppliers

[Indentations added for clarity]

Chapter 4. Agricultural Water Suppliers

10608.48.

(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i)

(1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5. Sustainable Water Management

10608.50.

(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

PART 2.8. AGRICULTURAL WATER MANAGEMENT PLANNING

Chapter 1. General Declarations and Policy

10800. This part shall be known and may be cited as the Agricultural Water Management Planning Act.

10801. The Legislature finds and declares all of the following:

(a) The waters of the state are a limited and renewable resource.

(b) The California Constitution requires that water in the state be used in a reasonable and beneficial manner.

(c) Urban water districts are required to adopt water management plans.

(d) The conservation of agricultural water supplies is of great statewide concern.

(e) There is a great amount of reuse of delivered water, both inside and outside the water service areas.

(f) Significant noncrop beneficial uses are associated with agricultural water use, including streamflows and wildlife habitat.

(g) Significant opportunities exist in some areas, through improved irrigation water management, to conserve water or to reduce the quantity of highly saline or toxic drainage water.

(h) Changes in water management practices should be carefully planned and implemented to minimize adverse effects on other beneficial uses currently being served.

(i) Agricultural water suppliers that receive water from the federal Central Valley Project are required by federal law to prepare and implement water conservation plans.

(j) Agricultural water users applying for a permit to appropriate water from the board are required to prepare and implement water conservation plans.

10802. The Legislature finds and declares that all of the following are the policies of the state:

(a) The conservation of water shall be pursued actively to protect both the people of the state and the state's water resources.

(b) The conservation of agricultural water supplies shall be an important criterion in public decisions with regard to water.

(c) Agricultural water suppliers shall be required to prepare water management plans to achieve conservation of water.

Chapter 2. Definitions

10810. Unless the context otherwise requires, the definitions set forth in this chapter govern the construction of this part.

10811. "Agricultural water management plan" or "plan" means an agricultural water management plan prepared pursuant to this part.

10812. "Agricultural water supplier" has the same meaning as defined in Section 10608.12.

10813. "Customer" means a purchaser of water from a water supplier who uses water for agricultural purposes.

10814. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of that entity.

10815. "Public agency" means any city, county, city and county, special district, or other public entity.

10816. "Urban water supplier" has the same meaning as set forth in Section 10617.

10817. "Water conservation" means the efficient management of water resources for beneficial uses, preventing waste, or accomplishing additional benefits with the same amount of water.

Chapter 3. Agricultural Water Management Plans

Article 1. General Provisions

10820.

(a) An agricultural water supplier shall prepare and adopt an agricultural water management plan in the manner set forth in this chapter on or before December 31, 2012, and shall update that plan on December 31, 2015, and on or before December 31 every five years thereafter.

(b) Every supplier that becomes an agricultural water supplier after December 31, 2012, shall prepare and adopt an agricultural water management plan within one year after the date it has become an agricultural water supplier.

(c) A water supplier that indirectly provides water to customers for agricultural purposes shall not prepare a plan pursuant to this part without the consent of each agricultural water supplier that directly provides that water to its customers.

10821.

(a) An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

(b) The amendments to, or changes in, the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840).

Article 2. Contents of Plans

10825.

(a) It is the intent of the Legislature in enacting this part to allow levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

(b) This part does not require the implementation of water conservation programs or practices that are not locally cost effective.

10826. An agricultural water management plan shall be adopted in accordance with this chapter. The plan shall do all of the following:

(a) Describe the agricultural water supplier and the service area, including all of the following:

(1) Size of the service area.

(2) Location of the service area and its water management facilities.

(3) Terrain and soils.

(4) Climate.

(5) Operating rules and regulations.

(6) Water delivery measurements or calculations.

(7) Water rate schedules and billing.

(8) Water shortage allocation policies.

(b) Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:

(1) Surface water supply.

(2) Groundwater supply.

(3) Other water supplies.

(4) Source water quality monitoring practices.

(5) Water uses within the agricultural water supplier's service area, including all of the following:

(A) Agricultural.

(B) Environmental.

(C) Recreational.

(D) Municipal and industrial.

(E) Groundwater recharge.

(F) Transfers and exchanges.

(G) Other water uses.

(6) Drainage from the water supplier's service area.

(7) Water accounting, including all of the following:

(A) Quantifying the water supplier's water supplies.

(B) Tabulating water uses.

(C) Overall water budget.

(8) Water supply reliability.

(c) Include an analysis, based on available information, of the effect of climate change on future water supplies.

(d) Describe previous water management activities.

(e) Include in the plan the water use efficiency information required pursuant to Section 10608.48.

10827. Agricultural water suppliers that are members of the Agricultural Water Management Council, and that submit water management plans to that council in accordance with the "Memorandum of Understanding Regarding Efficient Water Management Practices By Agricultural Water Suppliers In California," dated January 1, 1999, may submit the water management plans identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of Section 10826.

10828.

(a) Agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, may submit those water conservation plans to satisfy the requirements of Section 10826, if both of the following apply:

(1) The agricultural water supplier has adopted and submitted the water conservation plan to the United States Bureau of Reclamation within the previous four years.

(2) The United States Bureau of Reclamation has accepted the water conservation plan as adequate.

(b) This part does not require agricultural water suppliers that are required to submit water conservation plans to the United States Bureau of Reclamation pursuant to either the Central Valley Project Improvement Act (Public Law 102-575) or the Reclamation Reform Act of 1982, or both, to prepare and adopt water conservation plans according to a schedule that is different from that required by the United States Bureau of Reclamation.

10829. An agricultural water supplier may satisfy the requirements of this part by adopting an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) or by participation in areawide, regional, watershed, or basinwide water management planning if those plans meet or exceed the requirements of this part.

Article 3. Adoption and Implementation of Plans

10840. Every agricultural water supplier shall prepare its plan pursuant to Article 2 (commencing with Section 10825).

10841. Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection, and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code. A privately owned agricultural water supplier shall provide an equivalent notice within its service area and shall provide a reasonably equivalent opportunity that would otherwise be afforded through a public hearing process for interested parties to provide input on the plan. After the hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

10842. An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

10843.

(a) An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after the adoption of the plan. Copies of amendments or changes to the plans shall be submitted to the entities identified in subdivision (b) within 30 days after the adoption of the amendments or changes.

(b) An agricultural water supplier shall submit a copy of its plan and amendments or changes to the plan to each of the following entities:

(1) The department.

(2) Any city, county, or city and county within which the agricultural water supplier provides water supplies.

(3) Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.

(4) Any urban water supplier within which jurisdiction the agricultural water supplier provides water supplies.

(5) Any city or county library within which jurisdiction the agricultural water supplier provides water supplies.

(6) The California State Library.

(7) Any local agency formation commission serving a county within which the agricultural water supplier provides water supplies.

10844.

(a) Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

(b) An agricultural water supplier that does not have an Internet Web site shall submit to the department, not later than 30 days after the date of adopting its plan, a copy of the adopted plan in an electronic format. The department shall make the plan available for public review on the department's Internet Web site.

10845.

(a) The department shall prepare and submit to the Legislature, on or before December 31, 2013, and thereafter in the years ending in six and years ending in one, a report summarizing the status of the plans adopted pursuant to this part.

(b) The report prepared by the department shall identify the outstanding elements of any plan adopted pursuant to this part. The report shall include an evaluation of the effectiveness of this part in promoting efficient agricultural water management practices and recommendations relating to proposed changes to this part, as appropriate.

(c) The department shall provide a copy of the report to each agricultural water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearing designed to consider the effectiveness of plans submitted pursuant to this part.

(d) This section does not authorize the department, in preparing the report, to approve, disapprove, or critique individual plans submitted pursuant to this part.

Chapter 4. Miscellaneous Provisions

10850.

(a) Any action or proceeding to attack, review, set aside, void, or annul the acts or decisions of an agricultural water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(1) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(2) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 120 days after submitting the plan or amendments to the plan to entities in accordance with Section 10844 or the taking of that action.

(b) In an action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an agricultural water supplier, on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the agricultural water supplier has not proceeded in a manner required by law, or if the action by the agricultural water supplier is not supported by substantial evidence.

10851. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part. This part does not exempt projects for implementation of the plan or for expanded or additional water supplies from the California Environmental Quality Act.

10852. An agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

10853. No agricultural water supplier that provides water to less than 25,000 irrigated acres, excluding recycled water, shall be required to implement the requirements of this part or Part 2.55 (commencing with Section 10608) unless sufficient funding has specifically been provided to that water supplier for these purposes.

SEC. 5. This act shall take effect only if Senate Bill 1 and Senate Bill 6 of the 2009–10 Seventh Extraordinary Session of the Legislature are enacted and become effective.

B.8 California Code of Regulations, Title 23, §597 et seq. Agricultural Water Measurement

http://www.water.ca.gov/wateruseefficiency/sb7/committees/ag/a2/

§597. Agricultural Water Measurement

Under the authority included under California Water Code §10608.48(i)(1), the Department of Water Resources (Department) is required to adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirements in paragraph (1) of subdivision (b) of §10608.48.

For reference, §10608.48(b) of the California Water Code states that:

> *Agricultural water suppliers shall implement all of the following critical efficient management practices:*
>
> *(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).*
>
> *(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.*

For further reference, §531.10(a) of the California Water Code requires that:

> *(a) An agricultural water supplier shall submit an annual report to the department that summarizes aggregated farm-gate delivery data, on a monthly or bi-monthly basis, using best professional practices.*

Notes:

(1) Paragraphs (1) and (2) of §10608.48(b) specify agricultural water suppliers' reporting of aggregated farm-gate water delivery and adopting a volumetric water pricing structure as the purposes of water measurement. However, this article only addresses developing a range of options for water measurement.

(2) Agricultural water suppliers reporting agricultural water deliveries measured under this article shall use the "Agricultural Aggregated Farm – Gate Delivery Reporting Format for Article 2" (Rev. 6-20-12), developed for this article and hereby incorporated by reference.

(3) The Department shall report on the availability of new commercially available water measurement technologies and impediments to implementation of this article when reporting to the Legislature the status of adopted Agricultural Water Management Plans in plan submittal years 2012, 2015 and every five years thereafter as required by California Water Code §10845. The Department shall also report the findings to the California Water Commission.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 (b), 10608.48 (i), 10608.52 (b) and 10845 Water Code.

§597.1. Applicability

(a) An agricultural water supplier providing water to 25,000 irrigated acres or more, excluding acres that receive only recycled water, is subject to this article.

(b) A wholesale agricultural water supplier providing water to another agricultural water supplier (the receiving water supplier) for ultimate resale to customers is subject to this article at the location at which control of the water is transferred to the receiving water supplier. However, the wholesale agricultural water supplier is not required to measure the receiving agricultural water supplier's deliveries to its customers.

(c) A water supplier providing water to wildlife refuges or habitat lands where (1) the refuges or habitat lands are under a contractual relationship with the water supplier, and (2) the water supplier meets the irrigated acreage criteria of Water Code §10608.12(a), is subject to this article.

(d) An agricultural water supplier providing water to less than 10,000 irrigated acres, excluding acres that receive only recycled water, is not subject to this article.

(e) An agricultural water supplier providing water to 10,000 or more irrigated acres but less than 25,000 irrigated acres, excluding acres that receive only recycled water, is not subject to this article unless sufficient funding is provided specifically for that purpose, as stated under Water Code §10853.

(f) A canal authority or other entity that conveys or delivers water through facilities owned by a federal agency is not subject to this article.

(g) Pursuant to Water Code §10608.8(d), an agricultural water supplier "that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect," is not subject to this article.

(h) Pursuant to Water Code §10608.12(a), the Department is not subject to this article.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608.12 (a), 10608.48 (d), 10608.48 (f), 10828, and 10853 Water Code.

§597.2. Definitions

(a) For purposes of this article, the terms used are defined in this section.

(1) "Accuracy" means the measured volume relative to the actual volume, expressed as a percent. The percent shall be calculated as 100 x (measured value – actual value) / actual value, where "measured value" is the value indicated by the device or determined through calculations using a measured value by the device, such as flow rate, combined with a duration of flow, and "actual value" is the value as determined through laboratory, design or field testing protocols using best professional practices.

(2) "Agricultural water supplier," as defined in Water Code §10608.12(a), means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding acres that receive only recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the Department.

(3) "Approved by an engineer" means a California-registered Professional Engineer has reviewed, signed and stamped the plans, design, testing, inspection, and/or documentation report for a measurement device as described in this article.

(4) "Best professional practices" means practices attaining to and maintaining accuracy of measurement and reporting devices and methods described in this article, such as operation and maintenance procedures and practices recommended by measurement device manufacturers, designers, and industry professionals.

(5) "Customer" means the purchaser of water from an agricultural water supplier who has a contractual arrangement with the agricultural water supplier for the service of conveying water to the customer delivery point.

(6) "Delivery point" means the location at which the agricultural water supplier transfers control of delivered water to a customer or group of customers. In most instances, the transfer of control occurs at the farm-gate, which is therefore, a delivery point.

(7) "Existing measurement device," means a measurement device that was installed in the field prior to the effective date of this article.

(8) "Farm-gate," as defined in Water Code §531(f), means the point at which water is delivered from the agricultural water supplier's distribution system to each of its customers.

(9) "Irrigated acres," for purposes of applicability of this article, is calculated as the average of the previous five-year acreage within the agricultural water supplier's service area that has received irrigation water from the agricultural water supplier.

(10) "Manufactured device" means a device that is manufactured by a commercial enterprise, often under exclusive legal rights of the manufacturer, for direct off-the-shelf purchase and installation. Such devices are capable of directly measuring flow rate, velocity, or accumulating the volume of water delivered, without the need for additional components that are built on-site or in-house.

(11) "Measurement device" means a device by which an agricultural water supplier determines the numeric value of flow rate, velocity or volume of the water passing a designated delivery point. A measurement device may be a manufactured device, on-site built device or in-house built device.

(12) "New or replacement measurement device" means a measurement device installed after the effective date of this article.

(13) "Recycled water" is defined in subdivision (n) of §13050 of the Water Code as water that, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur, and is therefore considered a valuable resource.

(14) "Type of device" means a measurement device that is manufactured or built to perform similar functions. For example, rectangular, v-notch, and broad crested weirs are one type of device. Similarly, all submerged orifice gates are considered one type of device.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 10608.12 (a), 10608.12 (m), 10608.48, and 10813 Water Code.

§597.3 Range of Options for Agricultural Water Measurement

An agricultural water supplier subject to this article shall measure surface water and groundwater that it delivers to its customers pursuant to the accuracy standards in this section. The supplier may choose any applicable single measurement option or combination of options listed in paragraphs (a) or (b) of this section. Measurement device accuracy and operation shall be certified, tested, inspected and/or analyzed as described in §597.4 of this article.

(a) Measurement Options at the Delivery Point or Farm-gate of a Single Customer

An agricultural water supplier shall measure water delivered at the delivery point or farm-gate of a single customer using one of the following measurement options. The stated numerical accuracy for each measurement option is for the volume delivered. If a device measures a value other than volume, for example, flow rate,

velocity or water elevation, the accuracy certification must incorporate the measurements or calculations required to convert the measured value to volume as described in §597.4(e).

(1) An existing measurement device shall be certified to be accurate to within ±12% by volume.

and,

(2) A new or replacement measurement device shall be certified to be accurate to within:

(A) ±5% by volume in the laboratory if using a laboratory certification; (B) ±10% by volume in the field if using a non-laboratory certification.

(b) Measurement Options at a Location Upstream of the Delivery Points or Farm-gates of Multiple Customers

(1) An agricultural water supplier may measure water delivered at a location upstream of the delivery points or farm-gates of multiple customers using one of the measurement options described in §597.3(a) if the downstream individual customer's delivery points meet either of the following conditions:

(A) The agricultural water supplier does not have legal access to the delivery points of individual customers or group of customers needed to install, measure, maintain, operate, and monitor a measurement device.

Or,

(B) An engineer determines that, due to small differentials in water level or large fluctuations in flow rate or velocity that occur during the delivery season at a single farm-gate, accuracy standards of measurement options in §597.3(a) cannot be met by installing a measurement device or devices (manufactured or on-site built or in-house built devices with or without additional components such as gauging rod, water level control structure at the farm- gate, etc.). If conditions change such that the accuracy standards of measurement options in §597.3(a) at the farm-gate can be met, an agricultural water supplier shall include in its Agricultural Water Management Plan, a schedule, budget and finance plan to demonstrate progress to measure water at the farm-gate in compliance with §597.3(a) of this article.

(2) An agricultural water supplier choosing an option under paragraph (b)(1) of this section shall provide the following current documentation in its Agricultural Water Management Plan(s) submitted pursuant to Water Code §10826:

(A) When applicable, to demonstrate lack of legal access at delivery points of individual customers or group of customers downstream of the point of measurement, the agricultural water supplier's legal counsel shall certify to the Department that it does not have legal access to measure water at customers delivery points and that it has sought and been denied access from its customers to measure water at those points.

(B) When applicable, the agricultural water supplier shall document the water measurement device unavailability and that the water level or flow conditions described in §597.3(b)(1)(B) exist at individual customer's delivery points downstream of the point of measurement as approved by an engineer.

(C) The agricultural water supplier shall document all of the following criteria about the methodology it uses to apportion the volume of water delivered to the individual downstream customers:

(i) How it accounts for differences in water use among the individual customers based on but not limited to the duration of water delivery to the individual customers, annual customer water use patterns, irrigated acreage, crops planted, and on-farm irrigation system,

and;

(ii) That it is sufficient for establishing a pricing structure based at least in part on the volume delivered,

and;

(iii) That it was approved by the agricultural water supplier's governing board or body.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 *(i)* (1), and 10826 Water Code.

§597.4 Accuracy Certification, Records Retention, Device Performance, and Reporting

(a) Initial Certification of Device Accuracy

The accuracy of an existing, new or replacement measurement device or type of device, as required in §597.3, shall be initially certified and documented as follows:

(1) For existing measurement devices, the device accuracy required in section 597.3(a) shall be initially certified and documented by either:

(A) Field-testing that is completed on a random and statistically representative sample of the existing measurement devices as described in §597.4(b)(1) and§597.4(b)(2). Field-testing shall be performed by individuals trained in the use of field-testing equipment, and documented in a report approved by an engineer.

Or,

(B) Field-inspections and analysis completed for every existing measurement device as described in §597.4(b)(3). Field-inspections and analysis shall be performed by trained individuals in the use of field inspection and analysis, and documented in a report approved by an engineer.

(2) For new or replacement measurement devices, the device accuracy required in sections 597.3 (a)(2) shall be initially certified and documented by either:

(A) Laboratory Certification prior to installation of a measurement device as documented by the manufacturer or an entity, institution or individual that tested the device following industry-established protocols such as the National Institute for Standards and Testing (NIST) traceability standards. Documentation shall include the manufacturer's literature or the results of laboratory testing of an individual device or type of device.

Or,

(B) Non-Laboratory Certification after the installation of a measurement device in the field, as documented by either:

(i) An affidavit approved by an engineer submitted to the agricultural water supplier of either (1) the design and installation of an individual device at a specified location, or (2) the standardized design and installation for a group of measurement devices for each type of device installed at specified locations.

Or,

(ii) A report submitted to the agricultural water supplier and approved by an engineer documenting the field-testing performed on the installed measurement device or type of device, by individuals trained in the use of field testing equipment.

(b) Protocols for Field-Testing and Field-Inspection and Analysis of Existing Devices

(1) Field-testing shall be performed for a sample of existing measurement devices according to manufacturer's recommendations or design specifications and following best professional practices. It is recommended that the sample size be no less than 10% of existing devices, with a minimum of 5, and not to exceed 100 individual devices for any particular device type. Alternatively, the supplier may develop its own sampling plan using an accepted statistical methodology.

(2) If during the field-testing of existing measurement devices, more than one quarter of the samples for any particular device type do not meet the criteria pursuant to §597.3(a), the agricultural water supplier shall provide in its Agricultural Water

Management Plan, a plan to test an additional 10% of its existing devices, with a minimum of 5, but not to exceed an additional 100 individual devices for the particular device type. This second round of field-testing and corrective actions shall be completed within three years of the initial field-testing.

(3) Field-inspections and analysis protocols shall be performed and the results shall be approved by an engineer for every existing measurement device to demonstrate that the design and installation standards used for the installation of existing measurement devices meet the accuracy standards of §597.3(a) and operation and maintenance protocols meet best professional practices.

(c) Records Retention

Records documenting compliance with the requirements in §597.3 and §597.4 shall be maintained by the agricultural water supplier for ten years or two Agricultural Water Management Plan cycles.

(d) Performance Requirements

(1) All measurement devices shall be correctly installed, maintained, operated, inspected, and monitored as described by the manufacturer, the laboratory or the registered Professional Engineer that has signed and stamped certification of the device, and pursuant to best professional practices.

(2) If an installed measurement device no longer meets the accuracy requirements of §597.3(a) based on either field-testing or field-inspections and analysis as defined in sections 597.4 (a) and (b) for either the initial accuracy certification or during operations and maintenance, then the agricultural water supplier shall take appropriate corrective action, including but not limited to, repair or replacement to achieve the requirements of this article.

(e) Reporting in Agricultural Water Management Plans

Agricultural water suppliers shall report the following information in their Agricultural Water Management Plan(s):

(1) Documentation as required to demonstrate compliance with §597.3 (b), as outlined in section §597.3(b)(2), and §597.4(b)(2).

(2) A description of best professional practices about, but not limited to, the (1) collection of water measurement data, (2) frequency of measurements, (3) method for determining irrigated acres, and (4) quality control and quality assurance procedures.

(3) If a water measurement device measures flow rate, velocity or water elevation, and does not report the total volume of water delivered, the agricultural water supplier must document in its Agricultural Water Management Plan how it converted the

measured value to volume. The protocols must follow best professional practices and include the following methods for determining volumetric deliveries:

(A) For devices that measure flow-rate, documentation shall describe protocols used to measure the duration of water delivery where volume is derived by the following formula: Volume = flow rate x duration of delivery.

(B) For devices that measure velocity only, the documentation shall describe protocols associated with the measurement of the cross-sectional area of flow and duration of water delivery, where volume is derived by the following formula: Volume = velocity x cross-section flow area x duration of delivery.

(C) For devices that measure water elevation at the device (e.g. flow over a weir or differential elevation on either side of a device), the documentation shall describe protocols associated with the measurement of elevation that was used to derive flow rate at the device. The documentation will also describe the method or formula used to derive volume from the measured elevation value(s).

(4) If an existing water measurement device is determined to be out of compliance with §597.3, and the agricultural water supplier is unable to bring it into compliance before submitting its Agricultural Water Management Plan in December 2012, the agricultural water supplier shall provide in its 2012 plan, a schedule, budget and finance plan for taking corrective action in three years or less.

Note: Authority cited: Section 10608.48, Water Code. Reference: Sections 531.10, 10608.48 *(i)* (1), and 10826 Water Code.

Figure 3 Aggregated Farm-gate Delivery Report

State of California | The Natural Resources Agency | Department of Water Resources

Agricultural Aggregated Farm-Gate[1] Delivery Reporting Format for Article 2

Due annually beginning no later than July 31, 2013 from agricultural water suppliers subject to Title 23, Division 2, Chapter 5.1, Article 2 of the CCR - Agricultural Water Measurement

1. Water Supplier Information

Name:

Address:

Phone Number:

Fax:

Total Number of Farm-Gates:

Number of Measured Farm-Gates:

Service Area Acreage:

2. Contact information

Name:

Title:

Address:

Phone Number:

Fax:

E-mail:

Submittal date:

3. Aggregated Farm-Gate Delivery Data[2]: (*provide monthly or bimonthly data, acre-feet*)

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
Monthly Deliveries													

	Jul-Aug	Sep-Oct	Nov-Dec	Jan-Feb	Mar-Apr	May-Jun	Total
Bimonthly Deliveries							

4. Explanations, Comments and Best Professional Practices[3]:

Note: An agricultural water supplier's total water use may be different from Aggregated Farm-Gate deliveries because measurement at these points may not account for other practices (such as groundwater recharge/conjunctive use, water transfers, wheeling to other agencies, urban use, etc).

1. "Farm-gate" means the point at which water is delivered from the agricultural water supplier's distribution system to each of its individual customers as specified in the Agricultural Water Measurement Regulation (Title 23, Division 2, Chapter 5.1, Article 2 of the CCR).
2. "Aggregated farm-gate delivery data" means information reflecting the total volume of water an agricultural water supplier provides to its customers and is calculated by totaling its deliveries to customers.
3. "Best Professional Practices" is defined in Title 23, Division 2, Chapter 5.1, Article 2 of the CCR, Section 597.2.

Article 2 Form - Rev. 6-20-2012

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